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RENAL PATHOLOGIC CHANGES IN HYPERTENSION AND GLOMERULONEPHRITIS

CLINICAL INTERPRETATION

CHAIRMAN'S ADDRESS

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Much of the very abundant literature on diseases of the kidneys during the past five years has consisted in reports of clinical investigations of renal function in nephritis and hypertension as revealed by inulin and diodrast clearance tests. These two substances possess certain qualities that render them particularly useful for this purpose, and these tests appear to rest on a theoretically sound basis. The object of most of these investigations has been to measure the degree of competence of the kidneys to perform their function of elimination and to formulate a concept of the conditions that must exist in these organs in order to give rise to the observed results of these tests. There are few or no available observations based on a comparison of the actual pathologic changes in the kidneys and inulin and diodrast clearances. It is my object in this paper to reverse this clinical point of view and to interpret the pathologic changes characteristic of nephritis and hypertension in terms of the inevitable effects of these structural alterations on the general functional capacity of the kidneys.

To attain this end it is necessary to have clear concepts (1) of the normal structural pattern of the kidneys, (2) of the mechanisms by which the kidneys perform their functions through the medium of this structural pattern and (3) of the basic changes induced in this structural pattern by disease. By integrating these three concepts, one can interpret the effects of these structural alterations on the normal mechanisms of the kidneys and the disturbances of renal function in nephritis and hypertension.

STRUCTURE AND FUNCTIONS OF THE KIDNEYS

Each human kidney contains approximately one million anatomic and physiologic units or nephrons. Each nephron consists of a glomerulus and a tubule. The glomerulus is a tuft of nonanastomosing capillaries, lined with ordinary endothelium and covered externally with a single layer of very thin epithelial cells. This mass, which forms an ideal semipermeable membrane or biologic filter, is invaginated into the upper end of the tubular portion of the nephron.

Each renal tubule is divided into four portions. The proximal convoluted tubule follows a tortuous course in the cortex of which it forms a considerable portion. Its function is the conservation by selective reabsorption from the glomerular filtrate of substances needed by the body. This process requires the simultaneous "obligate" reabsorption of a volume of water that is proportional to the quantity of solute (sugar, urea, chlorides) absorbed. The distal convoluted tubule also lies in the cortex, and its chief function appears to be that of altering the reaction of the urine and rendering it relatively strongly acid. Intercalated between the proximal and distal convoluted tubules is Henle's loop. This structure is peculiar to the kidneys of birds and mammals, the only animals that are capable of secreting a urine that is hypertonic to the blood. Henle's loop concentrates the urine by the "facultative" absorption of water. The collecting tubules, in which the distal convoluted tubules end, are mere conduits, without specific function except that of conducting the finished urine to the renal pelvis, whence it passes to the bladder for final excretion.

It is a general biologic principle that the structural pattern of the circulation in such organs as the liver, lungs and kidneys, which are concerned with producing changes in the composition of the blood, is quite different in principle from that in other organs, such as the brain and heart muscle, in which the blood supply is only for nourishment and the removal of waste products. In accordance with this principle, the blood supply of the kidneys not only is very abundant but possesses certain peculiarities that differentiate it from the circulation in any other organ. The total blood flow through the human kidneys has been variously estimated at from 500 cc. per minute, based on comparative values of blood flow in anesthetized animals determined by use of the stromuhr, up to 1,100 cc. per minute determined by the use of the low concentration diodrast clearance test. Except for a relatively small amount of blood that nourishes the renal pelvis and parts of the medulla, all this abundant supply of blood passes through the glomeruli and then through a second system of peritubular capillaries. These peculiarities of the blood supply to the kidneys have important relations to the physiology and pathology of these organs. Any pathologic change that reduces the flow of blood through the glomeruli will decrease glomerular filtration and correspondingly diminish the blood supply to the tubules. This is the chief factor in the atrophy of the tubules in chronic glomerulonephritis and in the advanced stages of hypertension.

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Because of the size of the renal arteries, of the right angles at which they leave the aorta and of the manner in which they break up into the numerous branches in the hilus of the kidney, there is relatively little loss of pressure between the aorta and the glomerular capillaries. The hydrostatic pressure of the blood in these capillaries is higher than that in any other system of capillaries in the body and has been estimated to be about 60 per cent of the pressure in the aorta, or approximately 72 mm. of mercury. The hydrostatic pressure in the glomerular capillaries is maintained at a high level throughout their entire course because of the relatively small size of the efferent arteries through which the blood leaves the glomeruli. The efferent arteries are short and quickly break up into a meshwork of capillaries that surround the tubules from their own glomeruli of origin and anastomose to some extent with capillaries from other efferent arteries. The only exception to this is the efferent arteries that leave glomeruli situated in the deeper zone of the cortex. These vessels pass into the pyramids, where they give rise to systems of capillaries that surround and nourish Henle's loops. The hydrostatic pressure in all these peritubular capillaries is low because of the great size of their total cross section and because they open into veins. There are thus two systems of capillaries in the kidneys—the glomerular and the peritubular—transversed by the same blood but with widely different hydrostatic pressures.

The structural pattern of the kidneys is admirably adapted to the performance of their chief function of eliminating in the urine excess of water and certain mineral substances and the waste products of protein metabolism. The formation of urine begins in the glomeruli, but the process is not complete until the finished product is discharged into the renal conduits or collecting tubules. Glomerular filtration is a passive nonselective process of prodigious proportions, accomplished by energy supplied by the heart through the medium of the systemic blood pressure transmitted to the glomerular capillaries. On an average, in the neighborhood of 100 liters of a watery solution of the crystalloidal substances in the plasma in the same concentration as they existed in the plasma pass through the glomerular filter each twenty-four hours. What would otherwise be a wanton waste of needed materials is prevented by selective absorption by the renal tubules.

It is significant that, because of the peculiar structural pattern of the kidneys, two of the most important factors in renal function are purely mechanical, or physical, in nature, namely the hydrostatic pressure of the blood in the glomerular capillaries and the osmotic pressure of the plasma proteins. The normal exchange of fluids between blood and tissues throughout the body depends on the changed relations between the hydrostatic pressure at the arterial and venous ends of the systemic capillaries and the osmotic pressure of the contained plasma proteins, whereby fluids pass from blood to tissues through the arterial portion and from tissues to blood through the venous ends. However, in the glomerular capillaries the hydrostatic pressure of the blood is constantly higher than the osmotic pressure of the plasma proteins, and the direction of the flow of water and solutes is from blood to capsular space throughout the entire length of these vessels. On the other hand, the blood in the peritubular capillaries differs from that in the glomerular system in two important respects. Because of the loss of water from the blood in its passage through the glomeruli, the osmotic pressure of the plasma proteins is about 25 per cent higher in the peritubular capillaries than in any other system of capillaries in the body. At the same time the hydrostatic pressure of the blood in these capillaries is lower than the osmotic pressure of the plasma proteins. Hence the direction of flow of fluids in this system is constantly from tissue spaces to blood. This is an important factor in the functioning of the tubular epithelium. For water and solutes withdrawn by tubular reabsorption from the glomerular filtrate in the lumens of the tubules and discharged into the surrounding tissue spaces are quickly drawn into the peritubular capillaries by the increased osmotic pressure of the plasma proteins of the blood in these vessels.

The proximal convoluted tubules receive the glomerular filtrate and reabsorb from it all the sugar and varying amounts of urea, chlorides and other substances according to the needs of the body at the time, together with a sufficient amount of water to hold these substances in solution. This portion of the human nephron excretes such foreign substances as diodrast and phenolsulfonphthalein, but it does not normally excrete any of the usual waste products of metabolism. These are removed by glomerular filtration only. Tubular excretion is therefore a potential factor in renal function, a sort of phylogenic residuum, rather than a normal constant activity of the tubular epithelium. In some forms of chronic renal disease it is possible that there may be a reversion to this function as a compensatory mechanism in those tubules whose glomeruli have been destroyed but which have retained their peritubular capillary blood supply. Metallic poisons, such as mercury bichloride, are not reabsorbed by the tubular epithelium but are concentrated in the tubular lumens by the absorption of water. This portion of the nephron is thus very vulnerable to this type of poison, and this is the mechanism by which the proximal convoluted tubules are characteristically damaged by any dialysable poison which is not selectively reabsorbed. The high osmotic pressure of the plasma proteins in the peritubular capillaries may be responsible for the rapid diffusion of practically all the glomerular filtrate through the layer of dead, functionless tubular epithelium. This furnishes a reasonable explanation for the oliguria and anuria that are characteristic of poisoning with mercury biochloride.

The total amount of glomerular filtrate produced by the kidneys depends on the quantity and the hydrostatic pressure of the blood passing through the glomeruli and on their total filtration surface. Reduction of any one of these factors will, unless compensated, reduce the total amount of filtrate but not necessarily the total quantity of urine. For competent functioning of the kidneys it is necessary that a sufficient quantity of blood under adequate hydrostatic pressure pass through enough pervious glomeruli to insure the formation of the normal amount of glomerular filtrate. All the pathologic conditions that result in renal insufficiency have in common interference with the blood supply to the glomerular and peritubular capillaries. But even in the presence of severe renal disease the competence of the kidneys may be maintained, at least for a time, by one or more of several possible adaptations. When, as in chronic glomerulonephritis, for example, many glomeruli have been destroyed, an increased flow of blood through a smaller number of pervious glomeruli under an augmented hydrostatic pressure may still maintain the total glomerular filtration at a normal level.

PATHOLOGIC CONDITIONS

The two chief pathologic conditions that threaten the efficiency of the kidneys are (1) arteriolar sclerosis with narrowing of the lumens of the afferent arteries to the glomeruli and (2) primary disease of the glomeruli themselves. The former is the pathologic equivalent of long standing hypertension, the latter is glomerulonephritis.

The pathologic changes leading to hypertension appear to occur in three stages. In the first stage there is apparently a functional vasoconstriction which is not readily demonstrable as a structural change. The kidneys receive both vasoconstrictor and vasodilator fibers from the sympathetic nervous system, but under normal conditions they appear to exercise little control over renal function. Completely denervated kidneys are capable of producing a perfectly normal urine. However, the structural basis for sympathetic influence on renal activity is available and it is reasonable to assume that, like other potential functions such as tubular excretion, it may become active when needed or when the proper stimulus is applied. Smith and his co-workers were able to produce a reduction in renal blood flow, as measured by low concentration diodrast clearance, which they described as "ischemia of the kidneys," by injection of epinephrine and neosynephrin and as a result of "marked apprehension." Goldblatt and others have shown that renal ischemia results in the production of renin which is activated in the blood stream to angiotonin. This appears to be capable of initiating a vicious circle, since the kidneys produce renin as long as they remain ischemic and may remain ischemic as long as they continue to produce renin. It is an interesting speculation, wholly unsupported by any direct observations, that repeated states of "marked apprehension" or other fortuitous vasoconstrictor impulses might initiate the vicious circle; in other words, that a condition which began as a sort of physiologic accident might end in permanent hypertension.

The second and third stages of the arteriolar sclerosis are not infrequent in many organs of the body, but, as pointed out by Moritz and Oldt, it is only in the kidneys that they have any constant association with hypertension. The second stage is characterized by hypertrophy of the muscular coat and hyperplasia of the elastic lamina of the afferent arteries. In the third stage the walls of the arterioles become transformed into hyaline tubes with considerably narrowed lumens. In the first two stages the affected arterioles are still capable of responding to vasomotor impulses, while in the final or hyalinized stage response to such stimuli is no longer possible. This functional change due to the structural alterations in the vessel walls may therefore be a factor (1) in the variable response of hypertensive patients to such depressor substances as sodium thiocyanate and colloidal sulfur and (2) in the unpredictable results of sympathectomy as a mode of treatment of hypertension. Neither method of treatment could be effective in the third stage when the arterioles are reduced to hyaline tubes and have completely lost their power to respond to vasomotor stimuli.

Long continued constriction and thickening of the walls of the afferent arteries to the glomeruli threaten renal sufficiency by their tendency to reduce the flow of blood through the glomeruli. That this is not a mere tendency is indicated by the observations of H. W. Smith and his co-workers. They found, in their hypertensive patients, a constantly subnormal renal plasma flow and an early and progressive loss of tubular function as revealed by reduction of tubular excretory mass (high concentration diodrast clearance, or "diodrast Tm"). But as long as the high blood pressure in the renal arteries is capable of driving enough blood through the narrowed vessels to maintain an adequate filtration pressure in the capillaries of a sufficient number of glomeruli, glomerular filtration will continue in adequate amount. Lowering of blood pressure in hypertensive patients, either spontaneously or by means of thiocyanates or colloidal sulfur, would not necessarily affect renal function during the first two stages of the vascular changes characteristic of hypertension. These vessels are then still capable of responding to vasodilator impulses and by dilating would permit the passage through the glomeruli of a sufficient amount of blood under adequate filtration pressure even at the lower level of systemic blood pressure. This view appears to be theoretically sound. For its confirmation or disproof there is needed information, not now available, on the effect in hypertensive patients of thiocyanate and colloidal sulfur on the afferent and efferent arteries determined by actual observations on microscopic sections or on renal blood flow as determined by the clearance of diodrast at low plasma concentration.

As this disease progresses, more and more arterioles become so reduced in size that, in spite of the hypertension, the glomeruli and tubules which they supply become so ischemic that they are rendered functionally incompetent. This is the probable mechanism by which the constantly subnormal renal plasma flow and the early and progressive loss of tubular function observed in hypertensive patients by Smith was brought about. Such a progressive condition, particularly in persons under 50 years of age, may ultimately lead to complete renal insufficiency and death from uremia, while in older patients, because of the slower progress of the disease, death more commonly follows cardiac decompensation or cerebral hemorrhage.

The anatomic counterpart of clinical hypertension is a relatively simple change in the walls of the renal arterioles, and its potential effects on renal function are reasonably clear. But the correlation of the pathologic changes in the kidneys with disturbances in renal function in glomerulonephritis is far more difficult. Not only are the lesions in the latter disease more complex, but they are also more varied. They range from the simple accumulation of leukocytes in the glomerular capillaries and capsular space through capillary thrombosis and proliferation of endothelium to final complete fibrosis of the entire glomerulus. During the progress of this process the efficiency of the glomeruli as biologic filters is steadily reduced, partly by diminution in the blood flow through the affected vessels and partly through thickening of the walls of the capillaries. In continuously progressive and in repeatedly intermittent glomerulonephritis, sometimes early, sometimes late, reduction and final complete cessation of blood flow through glomeruli reaches such proportions that the factor of safety, or functional reserve, of the kidneys is exceeded. For this reason, when this disease progresses to its natural termination it ends inevitably in renal insufficiency and death from uremia. However, every experienced pathologist has seen functionally normal kidneys in which characteristic scars furnished valid documentary evidence of the existence of previously active glomerulonephritis whose progress had been arrested before renal insufficiency occurred. But, before

the final natural termination of the disease is reached, complications secondary to the changes in the kidneys may arise and cause death.

The primary lesion in glomerulonephritis is generally regarded as a nonsupportive type of inflammation. But this differs from ordinary inflammation in several important respects. In the first place it is not due to the actual presence of bacteria. The source and nature of the irritant or injurious agent are unknown. If the toxic agent is colloidal, that is, nonfiltrable, its selective action on the glomeruli may be explained by its concentration in the glomerular capillaries as a result of loss of water in the process of filtration. Whatever its origin and mode of action, it may initiate processes that are capable of progressing without the continued presence of the injurious agent. The permanent effects often appear to be the results of repair of the damage rather than of the primary injury.

The structural pattern of the glomeruli modifies the inflammatory process. Any exudate that forms will be carried away with the filtrate as long as the glomeruli affected are capable of producing filtrate. This mobile exudate usually disappears before serious permanent damage is done to the glomeruli. In the acute glomerulonephritis of scarlet fever, polymorphonuclear leukocytes may accumulate in considerable numbers in the capillaries of the glomeruli and in the capsular space. Perhaps it is because this type of glomerulonephritis is more definitely exudative than many other forms of the disease that scarlatinal nephritis rarely becomes chronic or proves fatal.

In other types of glomerulonephritis, particularly in the chronic form, the primary lesion in the glomeruli is proliferative in nature. The proliferation may involve either the endothelium or the connective tissue or both. Proliferation of the endothelium lining the glomerular capillaries reduces or completely occludes their lumens, thus inducing ischemia of the affected glomeruli and their accompanying tubules. In the acute and chronic forms of glomerulonephritis characterized by this type of lesion, the glomeruli are large, hypercellular and bloodless.

In both acute and chronic glomerulonephritis, injury to the glomeruli results in an increase in their permeability that permits the escape of serum albumin. As long, therefore, as a damaged glomerulus is capable of producing filtrate the filtrate will contain serum albumin. The loss of serum albumin from the plasma is greatest in lipoid nephrosis and in chronic glomerulonephritis with the nephrotic syndrome ("nephritis with edema"), in which it is often difficult to demonstrate any structural change in the glomeruli themselves.

Mild hypertension is often associated with acute glomerulonephritis. This is apparently due to mild renal ischemia, in the production of which two factors operate. In the first place, the flow of blood through the glomeruli is impeded by the proliferation of endothelium, by the accumulation of exudate or by thrombosis in the capillaries; and, second, the swelling of the kidney within its fibrous capsule increases intrarenal pressure, which augments the resistance to the flow of blood through the kidneys. Depending on the intensity of the action of these two factors, alterations in the quantity of urine excreted, from oliguria to complete anuria, and variable degrees of retention of nitrogenous waste products to almost complete renal insufficiency may occur in acute glomerulonephritis.

Chronic glomerulonephritis may be roughly divided into two types: the azotemic, accompanied by nitrogen retention, and the nephrotic, accompanied by edema. In the azotemic type the changes are proliferative and obstructive in nature and cause earlier and more serious interference with the circulation through the glomerular and peritubular capillaries. The affected glomeruli are ultimately reduced to avascular scars, and the associated tubules atrophy or completely disappear. There are thus a gradual destruction of glomeruli and a progressive reduction in their total filtration surface. Clinically the blood pressure increases, the kidneys lose their power to excrete either a concentrated or a dilute urine, and albuminuria is slight or moderate in degree. Since the afferent arteries are not involved, the hypertension increases the filtration pressure in the remaining intact glomeruli, thus producing a greater quantity of filtrate to each glomerulus. This augmented filtrate flows more rapidly through the tubules, and reabsorption is less complete. Furthermore, involvement of the glomeruli in the deeper zone of the cortex diminishes the blood supply to Henle's loops and thus interferes with the function of the tubules that are primarily concerned with the final concentration of the urine that renders it hypertonic to the blood. These two factors—rapid flow of filtrate through the tubules and reduction of the blood supply to Henle's loop—appear to explain the inability of the kidneys in chronic glomerulonephritis to excrete a concentrated urine.

The progressive destruction of glomeruli finally exceeds the factor of safety or functional reserve of the kidneys and then retention of nitrogenous waste products begins. In the final stages, progress may be very rapid and the onset of uremia may occur suddenly without previous clinical warning. On the other hand, in more slowly progressing glomerulonephritis the development of hypertension may proceed more rapidly than the diminution in total filtration surface of the glomeruli, so that some patients with this disease die from congestive failure of a severely hypertrophied heart before the disease has progressed to a stage at which renal insufficiency ends in uremia.

In lipoid nephrosis and in the nephrotic type of chronic glomerulonephritis the glomeruli are well filled with blood and the walls of the capillaries, for some reason not readily evident, become hyperpermeable. Serum albumin escapes into the urine in large quantities until the osmotic pressure of the plasma proteins is reduced below a critical level at which less fluid reenters the systemic capillaries than leaves them, and typical nephrotic edema results. This loss of albumin may also have other effects. The osmotic pressure of the plasma proteins in the blood of the peritubular capillaries is also reduced, and, on the principle that has been stated, may interfere with the reabsorptive function of the convoluted tubules.

During the nephrotic stage of chronic glomerulonephritis and in lipoid nephrosis there is neither hypertension nor retention of nitrogenous waste products, because there is neither ischemia of the kidneys nor interference with glomerular filtration. Later in the course of nephrotic chronic glomerulonephritis the changes in the kidneys assume the characteristics of the azotemic type, and proliferative and destructive changes in the glomeruli cause progressive reduction in the number of functioning renal units. This alteration in the structural pattern of the disease has two significant results: it induces renal ischemia with gradually developing hypertension, and it diminishes the loss of serum albumin. The plasma proteins then rise above the critical edema level and the nephrotic

edema disappears spontaneously. From this stage onward the progress of the disease is similar to that of the azotemic type, with ultimate death from uremia. The hypertension may for a time maintain renal function above the level at which uremia is threatened. But it also causes hypertrophy of the heart that may end in congestive heart failure and cardiac edema. Thus a patient with chronic glomerulonephritis may have edema of two different types during the course of his disease, and in each case the edema is due to a different cause and develops by a different mechanism.

Because of their peculiar structural pattern, the functional activity of the kidneys depends on two purely physical or mechanical factors: the hydrostatic pressure of the blood in the glomerular capillaries and the osmotic pressure of the plasma proteins. The changes in the afferent arteries and in the glomeruli that result in renal insufficiency have in common interference with the blood supply to the two systems of capillaries in the kidneys. As long as a sufficient amount of blood under an adequate filtration pressure passes through a sufficient number of functioning glomeruli, the kidneys will continue to function efficiently. Although the pathologic changes that induce renal insufficiency are known, we are still ignorant of the causes of these changes.

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NUTRITIONAL ASPECTS OF FEEDING AN ARMY

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The army ration used at present in training areas, i. e. the type A field ration, presupposes that normal food supplies are available. Its basis is a series of menus for a month, with the corresponding quantities of food required to prepare them. The menus planned must be balanced—nutritionally adequate—and cost not more than the value of the garrison ration at the time and place of issue. They must be prepared two months in advance in order that the quartermaster may have sufficient time to purchase the food. Menus may be modified by authorized persons in accordance with the supplies available or because of changes in the cost of the prescribed food at the time of issue. The menus are prepared under the direction of the corps area commander or by such post or station commanders in his corps area as he may designate.

The menus themselves are usually prepared by representatives of the schools for bakers and cooks or by menu boards consisting of representatives of the major organizations that are to use them. In some cases the menus and estimated quantities of food to be served, together with a dietary analysis, prepared by the food and nutrition officer, accompany the menus when presented to the commander for approval.

The requirement that menus shall be adequate and pleasing places on the corps area commander a responsibility that requires technical assistance. In this the surgeon, in his role as adviser to the commanding officer with relation to the health of troops, checks the menus and the quantities of food prescribed to determine the acceptability and nutritional adequacy of the ration. In this work he has the assistance of food and nutrition officers of the Sanitary Corps.

The plan of rationing followed in the Army recognizes that (*a*) the adequacy of the dietary is the essential consideration, (*b*) such a dietary may be obtained in many ways, (*c*) there are differences in the availability of foods in different parts of the country, and (*d*) within reasonable limits dietary habits should be honored. It follows, therefore, that the ration as actually eaten in the camps in different sections of the country may vary widely. There may be substitutions of foods in the menu because those prescribed are not available or because kinds or quantities of foods must be modified to adjust to the value of the garrison ration at the time of issue. Changes in nutritive value may occur because of improper storage, overcooking or preparation too long before the food is to be served. Furthermore, the choice of foods for a menu and the methods of cooking in the particular mess influence the amount of food actually consumed by the soldier. All these factors introduce problems that require constant attention if the adequacy of the dietary is to be maintained. Officers of the Medical Department contribute to the solution of these problems by anticipating difficulties and making constructive recommendations to correct them.

When troops move into areas where the type A ration cannot be provided, they may receive an initial issue of the type B or nonperishable ration; after that this ration is forwarded to them automatically unless the commanding general requests otherwise. When local supplies are available, they are used in place of corresponding items in the type B ration.

While the majority of the troops are cared for by "rationing in kind," a small proportion of the organizations receive a money allowance, corresponding to the value of the garrison ration, with which to purchase their own food. In these cases the responsibility for the character and adequacy of the dietary rests with the organization commander. The adequacy of the dietary of such messes cannot be reviewed with the same care as the field rations, although Medical Department officers do check the operations of these messes. A slight modification in the method of keeping the records of these messes, with very little work on the part of the mess sergeant, will make possible a nutritional accounting of such organizations. This will help to assure an adequate dietary and simplify the review on the part of the commanding officer or the surgeon.

The Army considers that food and its preparation are important factors in morale. The present system of rationing in kind lays the groundwork for adequate dietaries. The chief difficulties encountered are those of wise selection, with due regard to regional food habits, and the problems of transportation and of preparation to conserve nutrients and provide pleasing meals. Where difficulties of transportation limit variety, good cooking can do much to overcome the effects of a restricted choice of food. Fortunately, the soldier is an adaptable person; he will accept the inevitable and compensate with characteristic comment.

A review of the operations of the Army in the training camps in this country during World War I and the present war indicate that we have made little, if any, change in either the selection of foods or the adequacy of the ration. It is surprising to find that the ration followed then so nearly meets today's standards. The calcium and riboflavin intake tended to be lower in some

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camps in World War I, largely because of the composition of the garrison ration. Even in this regard many camps had as much milk as is now used. If there are to be improvements in today's rations, they will come largely through the realization that, while a good ration may be planned and issued, improper preparation, oversoaking, overcooking and long standing before service may destroy nutritive values and thus nullify an otherwise good diet.

We are in a much better position today to evaluate and plan adequate dietaries for troops sent overseas or on special details where it may be necessary to restrict the variety of food served, to depend largely on foods that are processed, or to conform to the limitations imposed by transportation or by varied climatic conditions. A number of special rations have been devised for troops operating under unusual situations, such as tanks, the tropics, mountains and desert,

TABLE 1.—*Classes of Food and the Major Contribution of Certain Nutrients Made by Each Class to the Army Dietary*

Class of Food	Contribution of Nutrients (10 Per Cent or More)
Meat	Calories, protein, fat, phosphorus, iron, vitamin A, thiamine, riboflavin, nicotinic acid (niacin)
Eggs	Riboflavin
Dairy products	Protein, fat, calcium, phosphorus, riboflavin
Fats, edible (butter)	Fat, vitamin A
Fats, cooking	Fat
Grain products	Calories, protein, carbohydrate, calcium, phosphorus, iron, thiamine, nicotinic acid (niacin)
Legumes and nuts	Iron
Sugars	Calories, carbohydrate
Leafy green and yellow vegetables	Vitamin A, ascorbic acid
Tomatoes	Ascorbic acid
Citrus fruits	Ascorbic acid
Potatoes	Ascorbic acid, nicotinic acid (niacin)
Vegetables, other	Ascorbic acid
Fruits, other	.....

all designed to meet emergency needs as to adequacy, palatability and stability.

The Army's problems of planning and reviewing dietaries and of advising with regard to nutrition are not fundamentally different from those encountered in institutions or even in private practice. Two factors are involved: (1) meeting the nutritive requirements for the particular situation and (2) selecting foods that are acceptable to the group or the individual and the preparation and service of these foods in a pleasing manner.

Our knowledge of nutritional requirements has advanced to the point where the Food and Nutrition Board of the National Research Council has set up provisional allowances for nutritional requirements, including those for certain of the vitamins. The general nutritional allowances are fairly clear. The vitamin allowances represent standards which are desirable, although under certain conditions they may be difficult to attain. Since this is true, a set of less liberal vitamin allowances is needed for the guidance of physicians and others who are called on to prescribe dietaries or to assess conditions in which food supplies are restricted.

Minimum standards for the vitamin content of foods for which special dietary claims are made have been promulgated under the Food, Drug and Cosmetic Act. These are much lower than the vitamin allowances considered desirable by the National Research Council, and lower than desirable for a dietary that most people should consume. It is important, therefore, to make clear which of these sets of standards is referred to when vitamin requirements are discussed in public, in advertisements and on labels, or when making recommendations on nutrition.

The adoption of dietary allowances leaves unsolved the problem of attaining them and calls for a review of our knowledge of the kinds and quantities of food which will meet them. Most foods, particularly natural foods, are sources of a number of nutrients; the percentage composition of a food is not a necessary index to the importance of that food in relation to the total food intake. Thus, a food having a low concentration of a particular nutrient may be normally eaten in such quantities that it makes a major contribution to the diet and, conversely, food rich in certain nutrients may not be eaten in sufficient quantities to make it a major contribution. The losses which occur in storage, preparation or service may seriously lower the nutritive value of a food. Finally, there is a limit to appetite as well as to the capacity to consume food.

It is not possible to rely on an attractive menu with a wide selection of foods or to specify servings of food to ensure an adequate diet. It is necessary to specify the quantities of each of the foods eaten. Simple dietaries composed of rather large quantities of a few well selected foods may be fully as adequate as those composed of smaller quantities of a larger variety of foods. Moreover, as previously mentioned, the value of well selected dietaries may be lost through improper preparation.

There is considerable information available on the composition of foods, but the necessity to meet quantitative nutritive allowances creates a new set of problems, particularly with regard to the labile and water soluble vitamins such as thiamine, ascorbic acid and carotene, and the inorganic elements. In addition, there is the question of the nutritive value of foods as they are actually eaten, i. e. after having been prepared, cooked and kept warm or served at the table rather than their value when produced or packaged. Some information on this point is available, but more is needed.

The extent to which losses in vitamin values may occur is illustrated by data contained in a recent letter from Dr. Robert S. Harris of the Massachusetts Institute of Technology. Dr. Harris writes:

> During this term (winter 1941-1942) I had a student undertake for a thesis a study of what happens to the thiamine and ascorbic acid in vegetables served in our Graduate House. He studied string beans, red cabbage, carrots, cauliflower, peas, potatoes, spinach, squash, yellow turnips and broccoli. He found that the loss of ascorbic acid in cooking was approximately 45 per cent and that after standing on a steam plate it was 75 per cent. The loss of thiamine during cooking was 35 per cent, and the total loss after two hours on the hot plate was 70 per cent of the original thiamine content. These figures represent averages in losses of foods. The variation between different vegetables during cooking extended from a loss of 8.5 per cent of ascorbic acid for string beans to 95 per cent for red cabbage. The loss of thiamine in cooking extended from 5 per cent for potatoes to 85 per cent for red cabbage. Total loss of thiamine after cooking and standing on the hot plate ranged from 29 per cent for potatoes to 85 per cent for carrots. The total loss of ascorbic acid for these foods after standing on a hot plate varied approximately 25 to 96 per cent.

Some simplification in our evaluation of foods seems indicated by these added complexities created by the vitamins. A useful procedure is to classify foods somewhat arbitrarily, either on the basis of their similar nutritive value or because of the particular contribution they make to the average dietary. We have found the classification given in table 1 useful in evaluating the soldier's ration. Opposite each class is indicated the nutrients contributed in amounts of 10 per cent or more to the total amount of nutrients in the average army dietary.

The distribution, of course, will be somewhat different in dietaries in which the quantities of food differ. The order, however, is roughly the same. The average consumption of various classes of foods and the detailed contribution of these classes in an average dietary prescribed for the soldier is given in table 2.

The second major problem in attaining adequate nutrition—that of food selection and preparation—is complicated by established food habits, by folkways, by emotional reactions and, to a certain extent, by arbitrary teaching patterns. The problem has also been complicated by the use of biased presentations of nutritional facts in the sales promotion of foods and food concentrates offered on the market. Some of the difficulties in getting people to eat foods are related to the methods of preparation rather than to the foods themselves.

The present emergency will call for many adjustments in food habits on the part of the civil population. It will require sound advice from physicians and others to assure the consumption of adequate dietaries. In attempting to adjust dietary habits to new conditions it is well to make some provision for improving methods of cooking. A sound nutritional program is based on recognition of the fact that, while certain foods are important, no one of them is essential. It recognizes the possibilities of attaining an adequate dietary in a variety of ways. In every instance there are several kinds or classes of foods which can be used interchangeably to supply the nutrients needed. In prescribing a nutritional program for a civilian group, care should be taken not to interfere with established food habits any more than is necessary to correct the nutritional deficiencies. The program should anticipate as far as possible changes in the kinds and characteristics of available foods in order to prevent frustration and dissatisfaction when customary foods can no longer be obtained. To this end a prescription of lists of classes of foods such as that set up in the National Nutritional Program should be accompanied by statements to the effect that "this is a good diet"; "there are many ways of obtaining an adequate dietary"; "if this one does not fit your food habits or pocket book, ask for further advice."

The medical profession will be looked to increasingly for advice on nutrition. Physicians must recognize the fact that the use of food groups or classes and menu plans are divices which have had to be reduced to the danger point of oversimplification. Their use may lead to some difficulties. It is the responsibility of physicians and public health officers, just as it is of the Surgeon General of the Army, to recognize the limitations of such devices and to be able to interpret them, and to provide safeguards against their misuse. Just as physicians have the problem of modifying the usual treatment for particular cases, so they must be able to supplement or modify the more or less rigid "food lists" or "dietary allowances" to fit the particular conditions for which they are prescribing. Adequate food plays an important part in maintaining good health and good morale. Both our army and our civilian population are entitled to be well fed, and the means are at hand to provide them with adequate and satisfactory dietaries with the minimum of deviation from accustomed food habits.

TABLE 2.—*Nutritional Contribution (per Cent) of Various Classes of Foods Based on Average Weight (Pounds per Man Daily) of Food Prescribed for U. S. Army, May-October 1941*

Group	Unit Wt.	Calories	Protein	Fat	Carbohydrate	Calcuim	Phosphorus	Iron	Vitamin A	Thiamine	Riboflavin	Nicotinic Acid	Ascorbic Acid
Meats, fish and poultry	0.8445	21.84*	42.06*	41.19*	0.33	3.42	29.87*	33.82*	14.55*	52.81*	30.05*	65.31*	1.81
Eggs, fresh	0.1777	2.61	7.08	4.20	0.10	3.83	7.41	7.91	5.41	4.92	12.84*	0.12	.....
Milk products (equivalents)	1.0850	9.02	13.30*	11.70*	5.29	59.60*	22.79*	3.99	8.58	4.35	29.52*	1.47	3.11
Butter	0.0930	7.13	0.21	17.52*	0.04	0.67	0.33	0.34	10.49*	0.03	0.14	0.16	.....
Fats, other	0.0847	7.62	0.07	18.78*	0.05	0.01	0.04	0.03	0.08	0.03	0.04	0.06	.....
Grain products	0.7373	23.32*	22.60*	5.30	38.81*	11.65*	17.48*	16.57*	0.11	14.55*	7.66	10.46*	.....
Legumes, dry	0.0660	2.48	4.90	0.51	3.55	3.51	6.38	10.98*	.....	5.28	3.15	2.79	.....
Sugars and syrups	0.3449	13.38*	0.26	.....	28.24*	1.26	0.27	3.10	.....	.....	.....	.....	.....
Vegetables, leafy, green or yellow	0.4202	1.46	2.25	0.21	2.46	6.02	3.14	6.01	46.69*	4.08	3.61	3.83	33.07*
Tomatoes	0.1603	0.48	0.61	0.08	0.81	0.96	1.26	1.70	4.66	1.94	1.14	1.19	8.95
Citrus fruits	0.2097	0.68	0.32	0.11	1.31	1.89	0.68	1.03	0.14	1.61	0.54	1.06	17.71*
Potatoes, white	0.6540	4.98	4.01	.....	9.31	1.94	5.98	7.48	0.74	7.42	4.44	9.94*	17.78*
Vegetables, other	0.3006	1.25	1.38	0.15	2.17	3.03	2.56	2.33	0.41	1.20	2.36	0.92	10.54*
Fruits, fresh and canned	0.4098	2.74	0.63	0.21	5.51	1.38	1.03	2.18	5.99	1.24	2.50	1.94	7.04
Fruits, dried	0.0342	1.01	0.31	0.03	2.01	0.83	0.76	2.52	2.14	0.54	2.00	0.76	.....
Total nutrients		4,331	131 Gm.	195 Gm.	513 Gm.	1.01 Gm.	2.03 Gm.	0.025 Gm.	13,270 I.U.	2 mg.†	2.8 mg.	29.6 mg.	97 mg.†

* Denotes those contributing 10 per cent or more.
† Corrected for moderate losses in cooking and preparation.

ABSTRACT OF DISCUSSION

DR. JOSEPH W. MOUNTIN, Washington, D. C.: I should like to ask a question. In the previous paper I was struck by the tremendous loss in food value, notably vitamin content brought about by the cooking process. Colonel Howe mentioned the necessity of devising methods of cooking or preparation which would not entail such losses in value. I should like to have him elaborate on those procedures.

DR. J. D. LEAKE, Washington, D. C.: We know the process in the laboratory in the preparation of bacteriologic mediums. It makes a difference when it is at a lower temperature. What would you say as to pressure temperature versus prolonged cooking at lower temperature?

DR. PAUL E. HOWE, Washington, D. C.: Dr. Mountin's question is difficult to answer. We have little information on the losses in cooking. There are good methods—well trained dietitians know how to conserve the nutrients. On the other hand, by the time some foods reach our tables they have lost more than they should. As Dr. Goodhart showed, the losses

may be greater after the cooking is completed than they are during the process of cooking. Furthermore, such factors as the time of cooking and the reaction of the food influence the loss of vitamins. There are simple ways of cooking. We can perhaps learn how to cook and eat food while a little underdone and thus reduce the losses in cooking. There is some evidence that the fat which the southerner likes on string beans may be somewhat of a protection to vitamin C. I don't know how much. In reply to Dr. Leake's question with regard to pressure cooking—in general, pressure cooking is better. Time and temperature are involved. For pressure cooking the temperature is a little higher, but the time is shortened. These factors are probably the major ones in pressure cooking. Pressure cooking is desirable under most circumstances. The German army uses pressure cookers in its messes when they are not in the field.

NUTRITIONAL ASPECTS OF FEEDING IN THE UNITED STATES NAVY

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In approaching the topic of this paper, may I remind the reader that there is no more important single factor in building and maintaining high morale and keenness in naval personnel than an acceptable diet of high nutritive value. In fact, the import of optimum nutrition, in relation to physical fitness, can hardly be overemphasized. Modern naval warfare presents enormously increased hazards and a continuous state of tension, increased tremendously by the advent of air power, a heavy toll being laid on the physical and nervous stamina of the operating personnel. Not only must the food supply be adequate in quantity, but the variety must satisfy the requirements of a well balanced ration. This poses a difficult problem which can be met only by careful preplanning and skilful supervision.

The administrative responsibility for the subsistence activities of the Navy lies in the Supply Corps, which procures, stores, issues, prepares and arranges for the service of food. This requires a knowledge of raw and processed foods, storage requirements and spoilage factors, information as to the basic facts of nutrition and ability to direct the preparation of acceptable food. The Supply Corps also conducts training schools for subsistence personnel.

It appears pertinent, in this connection, to direct attention to the magnitude of the service of the supply of food and other items required to maintain a two ocean navy. Under the conditions existing two years ago, this force afloat approximated 100,000 men. Let us visualize this force, divided into many units of less than 100 up to 1,500 persons and distributed from, say, Lisbon to the West Indies, along our Pacific Coast, in Alaskan waters, the area of the Hawaiian Islands and in and around stations in the eastern Pacific. Now consider that the vast majority of these units are mobile, seldom remaining for long periods in the same area. Then visualize the requirements of these units in food, clothing, bedding, tools and nearly every known item of material required in the upkeep, maintenance and repair of several hundred well ordered floating industrial establishments. This involves the complex problem of procuring and supplying approximately 50,000 items of material and having them where they are required by each unit in this two ocean navy. This may give some concept of the complexity of the administration of supply afloat with which the Navy is confronted, enormously magnified by the present major war.

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THE NAVY RATION

The term "ration" in the naval service is defined as the allowance of food per man per day. This was laid down by an act of Congress in 1933, which specified the exact allowances of each item, these being presented in table 1. This law accomplished changes in basic allowances in conformity with the newer knowledge of nutrition. It prescribed increases in fruits and vegetables, both fresh and canned, and larger amounts of milk, substantial increases, therefore, being made in the protective foods. At the same time, certain decreases were directed in certain sources of proteins, fats and carbohydrates.

Under the Navy Ration Law, the quantity of food allowed per day per man is fixed, and issues must be accounted for by rations. However, any article comprised in the ration may be issued in excess of the authorized quantity, provided there is an underissue of equivalent money value in some other article or articles. The system is, therefore, highly flexible from the nutritive standpoint, but the accountability is rigid.

This underissue and overissue feature provides most desirable elasticity. For instance, any saving in underissue of the bread, meat, beverage, cereal, lard and oil ration can be utilized as a basis for the overissue of such foods as fresh fruits, fruit juices, fresh vegetables and milk. This flexibility has further advantages in that it is adaptable to virtually all climatic and market variations, the ration being based on issues in kind, the money value applying only to interchanges of allowances therein.

Although the underissue and overissue principle holds in general, there are a few minor limitations in the allowance of specified items, which should be mentioned at this point. Thus, the fresh vegetable ration must contain a minimum of 40 per cent Irish potatoes. Beef, fish and liver shall not be less than a prescribed fraction of the total meat issue, and pork, poultry, sausages, veal, mutton and lamb shall not exceed certain proportions of the total meat issue—these directives being modified in tropical waters to the end of improved dietary adjustment to climate. However, the main objective of these restrictions is administrative rather than physiologic.

There are forty components listed in the Navy ration, and this limitation leads to the question as to the availability of additional articles desired. This may be accomplished by the following procedure: The complete ration entails a definite cost level contingent on market conditions in the particular locality. Congress, however, stipulated such liberal allowances in the Ration Law that certain savings are often possible with economical administration consistent with adequate subsistence. A certain fraction of these savings is authorized for the procurement of miscellaneous items not specified in the official ration, such as oysters, clams and ice cream—this, however, being only an occasional practice.

While the Ration Law administratively operates satisfactorily in the fleet at large, certain difficulties are encountered in subsistence activities in small units. The Secretary of the Navy is, therefore, authorized to increase the food allowance in vessels carrying a crew of less than 150 men when, in his opinion, these craft are operating under conditions which warrant such additions.

Cost.—The fact that the Navy ration is a food and not a money allowance renders it adaptable to naval vessels in any port of the world. But this provision does not relieve the commissary officer of economical procurement consistent with satisfactory subsistence. This, in turn, brings up the question as to budgetary limitation of naval rationing in general by Congress. The annual appropriation is based on the average cost of the ration for the entire Navy for the previous fiscal year, justified overexpenditures being met by a deficiency appropriation.

Nutritive Value.—Nutrition surveys for the quantitative and qualitative evaluation of nutritive adequacy, on the basis of actual food consumption, have not been conducted in the Navy. It is my opinion that such studies should be considered at this time. Dependence is now placed on experience tables supplemented by an expanded proportion of the protective foods in accordance with modern practice. There has been an increasing awareness of the newer developments in nutrition in the formulation of menus by both commissary and medical officers.

It appears highly probable that the fuel value requirements of personnel are fully satisfied by the Navy ration. In fact, it should be pointed out that calorific demands have been materially reduced in the modern navy as a result of mechanization of many operations. For example, replacement of coal by oil in fueling, thus rendering hand labor virtually obsolete in the adoption of motor craft in place of the boat pulled by the crew; the trend to conversion to mechanization in hoisting boats, loading stores, passing powder, and even in the operation of the steering wheel.

There are a few instances available in which an appraisal of nutritive adequacy has been undertaken from a study of issued rations. Thus, Lieutenant Commander J. R. Phelps,[1] M. C., U. S. Navy, reviewed in 1925 the records of the rations which had been compiled from three battleships, covering a two months period. Assuming a total waste of 20 per cent, he reported the net fuel value as 3,700 calories computed on the basis of standard food composition tables. Again, allowing for 25 per cent loss of protein by waste, he estimated the consumption of this nutrient as 125 Gm. a day and concluded, from this rough approximation, that the crews had a sufficiency of food, a rather excessive fuel value and enough variety of proteins to furnish all essential amino acids. He considered, however, that there were indications of a deficiency in protective food components.

Another study of Navy ration nutritive values was conducted in the case of the battleship *Arizona* in 1940, the data being listed in table 2. This was based on a study of the total food issues for a daily average of 1,200 men collected by Commander E. F. Ney, Supply Corps, U. S. N.,[2] for a period of one year. Acknowledgment is made to Colonel Paul E. Howe, Sanitary Corps, U. S. Army, for the calculation of the nutrient values. The results of another study are also included in table 2, based on the provision requirements per thousand men for a thirteen week cruise of the U. S. Pacific Fleet Base Force in 1941. This involved a total of approximately one and one-half million rations. The nutrient values were calculated by Lieutenant J. A. ClaGue, Supply Corps, U. S. Naval Reserve, of the Bureau of Supplies and Accounts of the Navy Department. Also included in table 2 are the findings of a nutrition survey [3] based on an examination of the menus of nine army corps areas of the U. S. Army for a period of six months in 1941.

TABLE 1.—*The Navy Ration*

Articles	Ration Allowance
Total Bread Rations	
Biscuit	8 oz.
or Bread, fresh	12 oz.
or Flour	12 oz.
Total Meat Rations	
Meat, preserved	12 oz.
or Meat, salt and smoked	14 oz.
or Meat, fresh, ordinary	20 oz.
or Meat, fresh, boneless	14 oz.
or Fish, fresh	20 oz.
or Poultry	20 oz.
Total Vegetable Rations	
Vegetables, dried	12 oz.
or Vegetables, canned	18 oz.
or Vegetables, fresh	44 oz.
or Vegetables, juice	6 oz.
Total Fruit Rations	
Fruit, dried	4 oz.
or Fruit, canned	10 oz.
or Fruit, preserved	6 oz.
or Fruit, fresh	16 oz.
or Fruit juice, fresh	6 oz.
or Fruit juice, concentrated	0.6 oz.
or Fruit juice, powdered	1 oz.
Total Beverage Rations	
Cocoa	2 oz.
or Coffee	2 oz.
or Tea	½ oz.
Total Milk Rations	
Milk, evaporated	4 oz.
or Milk, fresh	½ pt.
or Milk, powdered	1 oz.
Total Miscellaneous Rations	
Butter	1.6 oz.
Cereals, rice, starch foods	1.6 oz.
Cheese	½ oz.
Eggs	1.2 egg
Lard or lard substitute	1.6 oz.
Oils, sauces and vinegar	⅜ gill
Sugar	5 oz.
Baking powder and soda	As required
Extracts, flavoring	As required
Mustard	As required
Pepper	As required
Pickles	As required
Salt	As required
Syrup	As required
Spices	As required
Yeast	As required

In comparing the data of the three studies in table 2, it must be borne in mind that these represent only food

1. Phelps, J. R.: The Navy Ration from the Viewpoint of Nutritional Science and Practical Administration, U. S. Nav. M. Bull. **24**: 381 (April) 1926.

2. Report contained in the files of the Bureau of Supplies and Accounts, Navy Department, 1942.

3. Howe, Paul E., Colonel, Sanitary Corps, U. S. Army: Personal communication, July 3, 1942, to the author.

issues as planned, with no correction for losses due to preparation, table waste or spoilage. The average total food was 5½ pounds in the Army study, 6 1/10 pounds, or 11 per cent higher, in the U. S. S. *Arizona* investigation. The amount of protein issued in the corps area study was less than in both the naval instances. The issues of nutrients were generally higher in both the *Arizona* and the Pacific Fleet Base Force as compared

TABLE 2.—*Daily Issues of Specific Nutrients for Men*

	U. S. S. Arizona *	Base Force, Pacific Fleet †	Nine Corps Areas U. S. Army ‡
Total foods, lbs.	6.1	.....	5.5
Calories	4,118	4,620	4,150
Protein, Gm.	145	139	132
Calcium, Gm.	0.92	0.84	0.97
Iron, mg.	27	32	25
Vitamin A, international units	16,460	15,125	12,000
Vitamin B_1, mg.	3.21	2.60	2.74
Vitamin B_2, mg.	3.52	2.80	2.57
Vitamin C, mg.	150	190	140

* For a period of one year for 1,200 men.

† Based on provisions issued for 1,000 men for a cruise of thirteen weeks of the U. S. Pacific Fleet Base Force in 1941.

‡ Based on a study of menus for nine Army corps areas for a period of six months in 1941.

with the Army study. Attention, however, is invited to the probability that the spoilage factor is greater under conditions in naval vessels, this tending to lower the findings given.

There are presented in table 3 the data of the *Arizona* study, to which a correction has been applied by a deduction of 25 per cent on the assumption that this represents the losses in preparation, table waste and spoilage. This is an arbitrary figure and, in all probability, is excessive under the circumstances. It will be noted that the first column of table 3 lists the food allowances as recommended by the Food and Nutrition Board of the National Research Council.[4] A comparison of the two sets of data indicated that the consumption of nutrients in the *Arizona* survey holds a favorable position in relation to the Food and Nutrition Board standards. However, the comparison is presented with considerable reservation, especially with respect to the data for vitamins. Whether a comparison of these results is valid is questionable for a number of reasons, which for lack of space will not be discussed. It should be noted that the values for vitamins B_1 and C were further corrected for losses in preparation and cooking. Admitting the limitations attached to conclusions regarding such data, the vitamin content of the dietaries for both the *Arizona* and the Pacific Fleet Base Force gives an impression of adequacy.

New Vitamin Sources.—Valuable sources of vitamins have been added to the Navy ration in 1942: vegetable and fruit juices, fresh, concentrated and canned, also flour enriched with vitamin B_1, niacin and iron, and enriched yeast. When it is considered that the storage facilities of even the larger types of naval vessels are sufficient to carry fresh fruits and leafy vegetables for only a few weeks, the value of these new sources of vitamins on protracted cruises needs no accent.

Vessels with a Money Allowance for the Ration.—The Navy ration is not issued to small types of vessels such as destroyers, submarines and submarine chasers. These ships are subsisted on the basis of a money allowance per man per day, under the direction of the commanding officer.

The submarine presents a special dietary problem under war conditions. These vessels are assigned to patrols which may extend sixty days or over. The storage capacity for provisions is so limited that the protective foods, in the form of fresh fruits and vegetables, eggs and milk, can be carried for only relatively short periods, the personnel then subsisting chiefly on meat and preserved foods, largely of the canned type. There appears to be no doubt as to the adequacy of the caloric and protein aspects of the ration, but there is some question with respect to the sufficiency of vitamin and mineral constituents. The possibility has not been put to the test of a nutrition survey, but all submarine personnel are now supplied with a vitamin complex as a means of forestalling any potential deficiency in these items.

ADMINISTRATIVE ASPECTS OF SUBSISTENCE ACTIVITIES OF THE SHIP

The commissary officer of the ship is charged with the administration of the mess, under the commanding officer. He is faced with the problem of menu planning, which involves the factors of availability of an adequate variety of foodstuffs, selection of foods fresh or canned, the itinerary of the ship and climatic conditions. He must construct a well balanced diet which can be translated into interesting and attractive food acceptably served. The factor of nutritive value must be correlated with that of acceptability.

Food Inspection.—The Navy makes every effort to procure food of high quality for its personnel. Meats are inspected by personnel of the Bureau of Animal Industry, which has successfully guarded this meat supply for many years. Fruits and vegetables are passed

TABLE 3.—*Calculated Consumption of Nutrients per Man per Day*

Man (70 Kg.)	National Research Council	U. S. S. Arizona *
Calories—moderately active	3,000	3,089
Proteins, Gm.	70	109
Calcium, Gm.	0.8	0.7
Iron, mg.	12	20
Vitamin A, international units	5,000	12,345
Vitamin B_1, mg.	1.8	1.8
Vitamin B_2 mg.	2.7	2.8
Vitamin C, mg.	75	89

* For a period of one year for an average of 1,200 men; calculated on the basis of an assumed loss of 25 per cent in preparation, table waste and spoilage; additional corrections for preparation and cooking losses applied in the case of vitamins B_1 and C.

on by marketing service inspectors of the Department of Agriculture. Naval inspectors and chemists examine dry provisions. These inspections are supplemented by those of the medical officer when fresh provisions are delivered aboard ship and must have the stamp of his approval.

Training of Subsistence Personnel.—It may be of interest to point out that the Navy maintains a cooking school at San Diego, Calif., for the training of subsistence personnel in the preparation and cooking of food. This includes special instructions in methods

4. Publication of Committee on Foods and Nutrition, National Research Council, May 1941.

of preparation and cooking of food to prevent or reduce losses of vitamins and minerals.

The Functions of the Medical Officer.—These fall under the following divisions: (1) inspection of the sanitary conditions of the galleys and mess spaces, (2) the periodic inspection of all food handlers as to physical fitness for handling food, (3) inspection as to the efficient sterilization of mess gear, (4) inspection of the selection, preparation and service of food, (5) examination of the menu with the objective of formulating a well balanced dietary and (6) recommendations for the correction of any deficiencies found. In other words, he is in theory the trained technical observer of mess operations. In practice, however, this actually requires the services of a nutritionist, the medical officer's qualifications being naturally limited in the technical fields of evaluating the nutritive status of diets and of the preparation of food.

CONCLUSIONS

As a result of the foregoing discussion, the following conclusions have been reached:

(*a*) Complete dietary surveys should be conducted in naval vessels with a view to evaluating the nutritive level of the Navy ration, as a basis for control in assuring an adequate dietary.

(*b*) The policy of assigning trained nutritionists to the larger divisions of the forces afloat should be considered, their services to be utilized as consultants in the planning of well balanced dietaries and in methods for the preparation and service of food.

ABSTRACT OF DISCUSSION

DR. PAUL E. HOWE, Washington, D. C.: The basis of rationing in the Army and Navy is different, and neither of them is perfect. The two systems, however, accomplish the same end—a well fed armed force. The Army garrison ration is intended primarily as a basis for determining the money that may be spent for food rather than as a list of foods to be eaten. The Navy sets certain quantities of food and adjusts the various components and alternates, as Captain Brown has indicated. The Navy operates on a system of "and or" with regard to ration components and calculates overages and underages in adjusting to the ration. The Army is operating on a monthly menu and quantities of food to prepare the menus. It is both possible and practicable to set up a ration that is nutritionally adequate and which can be used as a basis for checking the adequacy of the ration as it is issued. Such a plan has worked successfully in other places. We should also have on our ships and in the Army, especially where the garrison ration is in use, a nutritional record which would be on a par with a financial record. Such a record is consistent. Money is provided to buy food; why not keep the records, through nutritional accounting, in such a way as to demonstrate that the money has been correctly and wisely spent? Captain Brown uses the term "balanced." I wish we could get rid of this term. There is such a thing as balance, but it has such a complex, scientific significance that few of us really know its true significance. The calcium and phosphorus ratio and the interrelation of the members of the vitamin B complex are factors of balance. The word "adequate" is a better term. There is one factor in supplying food for the Navy that Captain Brown did not touch on. They carry stores for long periods of time and hence have higher wastage and greater spoilage. They must, to accomplish the same end, prescribe more perishable food per man daily than the Army.

MYOCARDIAL INFARCTION

CLINICAL FEATURES AND PROGNOSIS

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The material studied consists of a group of 274 cases of myocardial infarction seen during, or shortly after, what was considered to be the first attack. The diagnosis was confirmed in every instance by one or more electrocardiograms; in a large majority numerous electrocardiograms were taken, and the diagnosis was based on progressive changes in these records. In only a few cases was a single record obtained, but with the clinical picture the diagnosis was quite certain.

These 274 cases have been divided into three groups (table 1). The first or early fatal group consists of 20 per cent (55) of the total number studied, and it is composed of 36 males and 19 females who died within one month of their first clinically recognized myocardial infarction. The second or late fatal group is composed of 49.2 per cent (135) of the total number studied and includes 99 males and 36 females who lived longer than one month after their first clinically recognized myocardial infarction. The third or survival group contains 30.8 per cent (84) of the total number and includes 59 males and 25 females.

This disease is more prevalent in men than in women. Of the 274 patients included in this study, 194 were men and 80 were women. The ratio of men to women was 2.4:1, which is slightly less than the more often quoted figure 3:1.

AGE FACTORS

The average age of the entire group was 59 years (table 2). The average age was 60.7 years in group 1, 59.7 years in group 2 and 57.6 years in group 3. The age of the early fatal group was 3 years older than that of the survival group. This factor has been previously noted,[1] and Cooksey[2] and Master and Dack[3] have emphasized that the younger persons will more nearly resume their normal activity. The average age of the female group was somewhat older than the male. This was particularly true in the early fatal division, in which the average age of the females was 63.4 years and of the males 58 years.

That the patients who died were older than those who survived is borne out by the fact that 74.3 per cent (141) of the fatal group were over 55 years of age at the time of their infarction, whereas only 63 per cent (53) of those who survived had reached this age.

The age distribution of these patients was as follows: 1.46 per cent (4) in the fourth decade, 14 per cent (38) in the fifth, 29 per cent (80) in the sixth, 36 per cent (101) in the seventh and 17.5 per cent (49) in the eighth decade (table 3). The sixth and seventh decades show the greatest frequency rates. Of the 4 patients in the fourth decade only 1 survives; she had her first

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From the Rohlf Memorial Clinic.
Read before the Section on Miscellaneous Topics, Sessions on General Practice, at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1942.

1. Master, A. M.; Dack, Simon, and Jaffe, H. L.: Coronary Thrombosis: An Investigation of Heart Failure and Other Factors in Its Course and Prognosis, Am. Heart J. **13**: 330 (March) 1937. Conner, L. A., and Holt, Evelyn: The Subsequent Courses and Prognosis in Coronary Thrombosis, ibid. **5**: 705 (Aug.) 1930. Rosenbaum, F. F., and Levine, S. A.: Prognostic Value of Various Clinical and Electrocardiographic Features of Acute Myocardial Infarction, Arch. Int. Med. **68**: 5: 913 (Nov.) 1941.

2. Cooksey, W. B.: Coronary Thrombosis: Follow-Up Studies with Especial Reference to Prognosis, J. A. M. A. **104**: 2063 (June 8) 1935.

3. Master, A. M., and Dack, Simon: Rehabilitation Following Acute Coronary Artery Occlusion, J. A. M. A. **115**: 828 (Sept. 7) 1940.

occlusion at the age of 36 years, has had two since, and is surviving twelve years after the first infarction. One of the remaining 3 patients in this decade died within a month after his first infarction. Another became progressively worse and died in congestive failure six months after her first infarction. And the last patient had a second attack six months after the first and died suddenly one year later while overexerting.

TABLE 1.—*Distribution of Cases*

	Number of Cases	Group 1 Early Fatal 55 (20.0%)	Group 2 Late Fatal 135 (49.2%)	Group 3 Survival 84 (30.8%)
Males	194	36	99	59
Females	80	19	36	25
Total	274			

TABLE 2.—*Age Factors*

	Total Groups	Group 1 Early Fatal	Group 2 Late Fatal	Group 3 Survival
Average age	59.0 yrs.	60.7 yrs.	59.7 yrs.	57.6 yrs.
Female	59.7 yrs.	63.4 yrs.	57.9 yrs.	57.9 yrs.
Male	58.9 yrs.	58.0 yrs.	61.6 yrs.	57.3 yrs.
55 years or over at onset	243	38 (74.3%)	103	53 (63.1%)

OCCUPATION

At the beginning of this study it was thought possible that coronary artery disease might be found less frequently in people who were outdoors a great deal or who lived in rural areas (table 4). It will be noted by the table on occupation that persons in rural areas are frequently affected, and in all probability occupation in itself bears very little relation to the etiology of the disease.

TABLE 3.—*Age Distribution by Decades*

		Group 1 Early Fatal (55)		Group 2 Late Fatal (135)		Group 3 Survival (84)	
Decades	Total Cases	Males (36)	Females (19)	Males (99)	Females (36)	Males (59)	Females (25)
Fourth	4	1	0	1	1	0	1
Fifth	38	6	2	8	5	12	5
Sixth	80	12	5	30	6	19	8
Seventh	101	14	7	38	15	20	7
Eighth	49	2	5	22	9	7	4
Ninth	2	1	0	0	0	1	0

TABLE 4.—*Occupation*

Male 194 (70.8%)			Female 80 (29.2%)		
	No	%		No.	%
Farmer	73	37.7	Housewives: Rural	39	48.7
Business	60	30.9	Urban	37	46.2
Laborer	37	19.5	Business	1	1.2
Minister	10	5.1	Teacher	1	1.2
Physician	9	4.6	Nurse	2	2.5
Lawyer	3	1.5			
Dentist	1	0.5			

HISTORY

A family history of hypertension, cerebral vascular disease or cardiovascular disease was found to be present in about three fourths of the total number (table 5). A definite family history of cardiovascular disease was given by 133 patients (48 per cent).

A hypertension was known to have been present in 173 patients (63 per cent) prior to their first myocardial infarction. The criteria used were those of the American Heart Association, namely a systolic pressure of 140 mm. of mercury and a diastolic pressure of 90 mm. The duration of the known hypertension varied from one month to twenty years, the average length of time being 7.1 years. Many of the patients who did not give previous histories of hypertension had never had their blood pressure taken. It was not uncommon in these persons to find definite hypertension present after convalescence from the coronary occlusion was well advanced.

From every patient included in this study an antecedent history suggestive of heart disease was obtained either directly or from a relative or friend. As noted in table 5, dyspnea with or without exertion was the most prominent symptom and was admitted in 194 cases (70 per cent). This had been present from two months to ten years, or an average of 2.09 years. Angina of effort was the next most frequent complaint, and 37 per cent (103) of the group suffered from it in varying degrees. It had been present from one month to ten years, or an average of 1.5 years. Unusual

TABLE 5.—*History*

	Cases	Per Cent
Family history suggesting arteriosclerotic heart disease	133	48
Known hypertension 140/90 prior to first occlusion	173	63
Antecedent history of one of the following in every case:		
Dyspnea, with or without exertion	194	70
Angina of effort	103	37
Unusual fatigue	92	32
Indefinite epigastric distress or pain	53	19.3

TABLE 6.—*Possible Exciting Factors, 20.8 per Cent*

	Cases	Per Cent
Unusual exertion	23	8.28
Unusual excitement	13	4.68
Diabetes mellitus	8	2.88
Infection	5	1.80
Surgery	6	2.16
Pregnancy	1	0.36
Fractured hip	1	0.36

fatigue for a period of two to six weeks prior to the occlusion was a major complaint in 32 per cent (92). In several instances a physician was consulted for this complaint alone, and later the typical complaints and findings of myocardial infarction developed. In 19.3 per cent (53) epigastric distress or pain not related to exertion or effort was complained of, and it was thought to be due to the heart disease present.

EXCITING FACTORS

The association of possible exciting factors was considered to be present in 20.8 per cent (57) (table 6). I have seen 2 cases not included in this study in which a diagnosis of myocardial injury due to direct trauma was made. Worthy of special mention was a pregnancy case, a tredecigravida aged 43 who had a known hypertension of one month's duration prior to her first myocardial infarction. She was delivered three weeks after the occlusion and had a normal puerperium. Her activity was restricted for two years, after which congestive failure developed. Gradually she became worse and died three years after her first and only clinically recognized myocardial infarction. Hypertension was present during all this time except for a transitory drop in pressure during the postocclusion period. Unusual exertion and unusual excitement are important exciting factors but are found in relatively few cases.

SYMPTOMS

In 37 per cent (103) there was the complaint of a preliminary pain which I considered to be associated with the major episode of the infarction (table 7). This pain was seldom severe, at least not as severe as the pain to follow, and was described by some as a "distress" or "burning." It was always located either in the retrosternal region or in the epigastrium. Its occurrence varied from an hour to a week prior to the infarction but usually was within a few hours. In several instances this preliminary pain was recognized and a rest regimen and sedatives were administered. This did not prevent the major symptoms from developing, but I did feel that the patient was spared some suffering and shock. This symptom should not be confused with angina of effort, which prior to an occlusion may develop with much less effort than previously. This same observation has been made of dyspnea on exertion.

Severe pain was the most frequent major symptom of the infarction, being present in 56 per cent (154).

TABLE 7.—*Symptoms Associated with the Infarction*

	Cases	Per Cent
"Preliminary pain"	103	37.0
Severe pain	154	56.0
Moderate pain	35	13.0
Paroxysmal dyspnea	67	24.0
Fatigue-apprehension	63	22.9
Acute pulmonary edema	13	4.7

TABLE 8.—*Clinical Manifestations*

	Total (274)		Group 1 Early Fatal (55)		Group 2 Late Fatal (135)		Group 3 Survival (84)	
	No.	%	No.	%	No.	%	No.	%
Heart rate 100 or over (7 days)	96	35.0	42	76.3	39	28.8	15	17.8
Shock	160	58.4	38	69.0	67	49.6	55	65.4
Muffled sounds	200	72.9	45	81.0	97	71.8	58	69.0
Gallop rhythm	82	29.0	28	50.9	47	34.8	7	8.2
Friction rub	25	9.0	9	16.3	10	7.3	6	7.1
Subsequent cardiac enlargement	182	66.4	34	61.8	113	96.1	35	41.6
Subsequent congestive failure	125	45.6	23	41.8	85	62.9	17	20.2

The duration of the pain varied from one to forty-eight hours, and in some patients a recurring residual pain was noted for as long as two weeks. Pain which was considered to be moderate was complained of by 13 per cent (35) of the patients. Paroxysmal dyspnea was the major symptom in 24 per cent (67) and usually was accompanied by pain but was considered to be the more serious complaint. Unusual fatigue and apprehensiveness were pronounced in 22.9 per cent (63), with distribution as follows: in 52.7 per cent (29) of the early fatal group, in 8.3 per cent (7) of the survival group and in 20 per cent (27) of the late fatal group. In some instances either fatigue or apprehensiveness was noted alone, but generally they occurred simultaneously. Acute pulmonary edema in 4.7 per cent (13) and shock in 1.8 per cent (5) were also found to be prominent symptoms. A complete anuria for twenty-four hours was present in one of the latter group.

CLINICAL OBSERVATIONS

When the heart rate was 100 or over during the first week and continued at this rate, it was usually an ominous sign and was observed in 35 per cent (96) of the total group (table 8). There were 76.3 per cent (42) of the early fatal group showing this sign. In the remaining groups only 24.6 per cent (54) had a persistent heart rate of 100 or over. Master, Dack and Jaffe [1] found this observation to be of definite prognostic importance, as did Conner and Holt.[1] However, Rosenbaum and Levine [1] do not attach quite as much significance to it.

TABLE 9.—*Blood Pressure*

	Total (274)		Group 1 Early Fatal (55)		Group 2 Late Fatal (135)		Group 3 Survival (84)	
	No.	%	No.	%	No.	%	No.	%
No change	77	28.4	8	14.5	40	29.6	29	34.5
Pulse pressure 20 mm. or less	12	4.3	11	20.0	1	0.7	0	
Sudden fall	93	34.5	31	56.3	39	28.8	23	27.3
Early rise within 48 hours	60	21.8	4	7.2	33	24.4	22	26.0
No rise	53	19.3	36	65.4	13	9.6	4	4.7
Delayed fall	78	28.8	14	25.4	37	27.3	27	32.0
Delayed rise	59	21.5	3	5.4	32	23.7	24	28.5

Shock and muffling of the heart sounds were important findings from a diagnostic standpoint, as they occurred consistently in all groups.

A gallop rhythm was found in 50.9 per cent (28) of the early fatal group; there were 8.2 per cent (7) in the survival group. In the latter classification half of the instances were found when congestive failure developed months or years after the infarction occurred.

A friction rub was heard in only 9 per cent (25) of the cases. It is likely that this sign would have been found more often had the opportunity for more frequent examinations been possible. This finding is quite variable from patient to patient and its appearance may be very transient, as in some instances it can be heard for only a few hours, whereas in others it may be present for several days.

The subsequent development of cardiac enlargement was found to be less frequent in the survival group than in the fatal group and was of importance in the rehabilitation of the patient.

The development of congestive heart failure was encountered most frequently in the late fatal group: 62.9 per cent (85) of the 135 cases. This, however, did not occur until there had been further occlusions or until considerable time had elapsed after the initial occlusion. In the early fatal group this syndrome did develop in 41.8 per cent (23) and was of serious prognostic significance. Congestive heart failure has developed in 20.2 per cent (17) of the survival group; in only 0.5 per cent (3) was it found early after the occlusion.

TABLE 10.—*Multiple Occlusions, 96—31.3 per Cent*

	Group 1 Early Fatal (55)		Group 2 Late Fatal (135)		Group 3 Survival (84)	
	No.	%	No.	%	No.	%
Two	10	18.1	52	38.5	13	15.4
Three	0		17	12.5	0	
Four	0		3	0.2	1	1.1

The presence of a temperature of 101 F. or over for five days or longer is of importance; however, from a statistical point of view it was determined not to be of prognostic significance in this study. In several of the rapidly fatal cases a temperature of 103 to 104 F. was reached and maintained for a few days prior to death.

There was no change noted in the blood pressure in 24.4 per cent (77) of the total series (table 9). In the early fatal cases the blood pressure remained constant in 14.5 per cent (8) throughout the acute phase of the disease. In some instances there may have been a drop in pressure prior to observation, but this could not be determined accurately. In the late fatal cases 29.6 per cent (40) showed no change, and of this number 16 had severe paroxysmal dyspnea as their most prominent symptom. Some of these had acute pulmonary edema as an associated symptom. The greatest number was found in the survival group, in which 34.5 per cent (29) had no appreciable change in their blood pressure findings.

The pulse pressure was 20 mm. of mercury or less in 20 per cent (11) of the early fatal classification. There was only 0.7 per cent (1) in the late fatal and none in the survival group.

A sudden fall in the systolic blood pressure was noted in 56.3 per cent (31) of the early fatal, in 28.8 per cent (39) of the late fatal and in 27.3 per cent (23) of the survival cases. A sudden drop in the systolic blood pressure with an early rise was noted in only 7.2 per cent (4) of the early fatal, in 24.4 per cent (33) of the late fatal and in 26 per cent (22) of the survival group. There was an absence of early rise in the systolic pressure in 65.4 per cent (36) of the early fatal, 9.6 per cent (13) of the late fatal and 4.7 per cent (4) of the survival group. A delay in the fall of the blood pressure for several days to a week occurred in 28 per cent (78), and a delay in the rise of the blood pressure to a near normal level after a sudden drop occurred in 21.5 per cent (59) of the entire series. Neither of these observations was of statistical significance. The drop in systolic blood pressure during the course of acute myocardial infarction is a common occurrence and not prognostically significant. A sudden drop in systolic blood pressure with a failure to rise again to a level of 100 mm. of mercury within five days was a serious sign.

TABLE 11.—*Functional Capacity*

	Total Group (274)		Group 2 Late Fatal (135)		Group 3 Survival (84)	
	No.	%	No.	%	No.	%
Lived over one year	163	59.4	86	63.7	77	91.6
Activity: Normal			15	11.0	20	23.0
Restricted			71	62.5	57	67.0

MULTIPLE OCCLUSIONS

There were 31.3 per cent (96) of the 274 patients considered to have had more than one coronary occlusion (table 10). The criteria used for proving this were clinical manifestations corroborated by electrocardiographic changes and laboratory findings, with the exception of a few instances in which the autopsy and the history furnished the necessary proof.

FUNCTIONAL CAPACITY

The functional capacity of those patients who have been able to undergo graduated activity is considered in table 11. Nearly 60 per cent of the total group and 75 per cent of the survival groups lived one year or longer after their first myocardial infarction was diagnosed.

In group 2, 63.7 per cent (86) lived one year or longer, and of this number only 11 per cent (15) resumed normal activity sometime prior to their death. Seventy-seven, or 91.6 per cent, of the survival group were living a year or more, and of this group 23 per cent (20) have resumed normal activity. About one half of this number have been advised to restrict their activities somewhat but refused to do so. In 67 per cent (57) the activity is restricted both as a therapeutic measure and in some instances because of limited exercise tolerance. It was always considered best to limit the physical activity of persons who had been doing heavy work or would do heavy labor unless they were urged to avoid severe and prolonged exertion.

TABLE 12.—*Clinical Cause of Death*

	Group 1 Early Fatal (55)		Group 2 Late Fatal (135)	
	No.	%	No.	%
Progressive downhill course	33	60.0	0	
Subsequent coronary occlusion	10	18.0	50	37.0
Sudden undiagnosed	3	5.4	16	11.8
Congestive heart failure	5	9.0	63	46.6
Pulmonary infarction	0		1	0.74
Cerebral accident	2	33.6	3	2.22
Bronchial pneumonia	0		1	0.74
Accident	0		1	0.74
Saddle embolism	1	11.8	0	

CAUSE OF DEATH

An accurate study of the cause of death was not possible because of a lack of postmortem examinations. The mortality rate for the two sexes was about equal, as 68.7 per cent (55) of the women and 69.5 per cent (135) of the men had died at the conclusion of this study. A consideration of the clinical diagnosis as to the cause of death is shown in table 12. In group 1, 60 per cent (33) had a progressive downhill course and died within thirty days. Two of these patients came to necropsy and showed evidence of previous myocardial infarction which had not caused them to discontinue their normal occupation but had caused symptoms. Some of the patients in whom death was sudden or a second occlusion was diagnosed may have had a pulmonary infarction which was impossible to recognize. Congestive heart failure and subsequent coronary occlusion accounted for 83.6 per cent of the fatalities in group 2.

TABLE 13.—*Electrocardiographic Patterns*

	Cases	Group 1 Early Fatal (55)	Group 2 Late Fatal (135)	Group 3 Survival (84)
Important				
Anterior	87	41.8%	28.1%	30.9%
Posterior	97	32.7%	31.1%	44.0%
Indeterminate	47	21.4%	17.7%	13.0%
Unimportant				
Auriculoventricular block	14	9.0%	3.7%	4.7%
Bundle branch block	52	14.5%	22.9%	15.4%
Auricular fibrillation	35	9.0%	17.0%	10.7%
Right axis deviation	13			
Low voltage	19			
Ventricular tachycardia	2			

ELECTROCARDIOGRAPHIC PATTERNS

In the entire group of 274 cases, 87 were judged to have had an anterior infarction, 97 a posterior infarction and 47 could not be localized (table 13). In the early fatal cases 41.8 per cent (23) were anterior, 32.7 per cent (18) were posterior and 21.4 per cent (12) were not localized. In the late fatal group 28.1 per cent (38) were anterior, 31.1 per cent (42) were

posterior and 17.7 per cent (24) were of the indeterminate type. In the survival cases 30.9 per cent (26) were anterior, 44 per cent (37) were posterior and 13 per cent (11) not localized. There is, therefore, a definite predominance of the anterior and indeterminate electrocardiographic patterns in the early fatal group. These findings were similar to those of Vander Veer and Brown,[4] who found the occurrence of anterior and posterior infarction patterns nearly equal but that a significant percentage of the fatal cases were of the anterior variety. Rosenbaum and Levine [1] found that anterior infarction is more common in initial attacks, whereas Willius [5] and Master and his group [6] attached little significance to the localization of the infarct in relation to prognosis. Auriculoventricular block was found in 14 cases and was definitely more prominent in the early fatal group. No prognostic significance could be attached to the 52 cases of bundle branch block, to the 35 cases of auricular fibrillation, to the 13 cases of right axis deviation or to the 19 cases of low voltage which occurred sometime during the course of the disease. Ventricular tachycardia was found in 2 cases. In 1 it was present for two days after the first infarction and recurred with the second attack (which was fatal) nine months later. A second patient had this arrhythmia after his first occlusion and died on the third day.

TABLE 14.—*Percentage of Prognosis in Myocardial Infarction Based on Group Totals*

	Group 1 Early Fatal (55)	Group 2 Late Fatal (135)	Group 3 Survival (84)
Sinus tachycardia of 100 persisted over 5 days	76.3%	24.6%	
Age of patient over 55 years	74.3%		
Systolic blood pressure, sudden drop	56.3%	28.8%	27.3%
Fatigue and apprehensiveness	52.7%	20.0%	8.3%
Heart failure developed	41.8%	62.9%	20.2%
Pulse pressure, 20 mm. of mercury	20.0%	0.7%	0.0%
Anterior or indeterminate infarction	64.2%	45.8%	43.9%
Gallop rhythm	50.9%	27.3%	8.2%

SUMMARY AND CONCLUSIONS

The purpose of this analysis has been to evaluate the various clinical symptoms and signs as they relate to the prognosis in acute myocardial infarction. The factors considered to be of prognostic importance are listed in table 14 according to their statistical value as determined by a certified statistician.

In this study of 274 cases of myocardial infarction, a poor prognosis was indicated when:

1. A sinus tachycardia of 100 persisted over five days.
2. The age of the patient was over 55 years.
3. The systolic blood pressure dropped suddenly and failed to rise again to a level of 100 mm. of mercury within five days.
4. Unusual fatigue and apprehensiveness were prominent during the early convalescent period.
5. Congestive heart failure developed.
6. The pulse pressure was 20 mm. of mercury or less.
7. The electrocardiogram revealed an anterior infarction or an indeterminate infarction.
8. There was a gallop rhythm present.

A good prognosis was indicated when the aforementioned factors were not predominant. This was especially true if (1) the patient was under 55 years of age, (2) the heart rate did not reach 100 or if it dropped within two or three days to 90 or less, (3) the blood pressure returned to a near normal level, (4) the heart was not enlarged and (5) there were no signs of cardiac insufficiency. The patient in whom these good prognostic signs predominate should live many years if carefully managed.

4. Vander Veer, J. B., and Brown, S. E.: The Diagnosis and Prognosis of Coronary Occlusion: The Electrocardiogram as an Aid, Pennsylvania M. J. **39**: 305 (Feb.) 1936.
5. Willius, F. A.: Life Expectancy in Coronary Thrombosis, J. A. M. A. **106**: 1890 (May 30) 1936.
6. Master, A. M.; Jaffe, J. L., and Dack, Simon: The Treatment and Immediate Prognosis of Coronary Artery Thrombosis, Am. Heart J. **12**: 549 (Nov.) 1936.

ABSTRACT OF DISCUSSION

DR. HORACE M. KORNS, Iowa City: There can no longer be any doubt that the xanthine preparations are useful in the treatment of coronary occlusion. As soon as possible after the occlusion has occurred, provided the patient is not in shock, 7½ grains (0.5 Gm.) of aminophylline (theophylline with ethylene diamine) should be given intravenously, and this should be repeated about every eight hours for the first few days. Each dose is diluted to 25 cc. with isotonic solution of sodium chloride, and the rate of injection should not exceed 5 cc. a minute. At the same time, and after intravenous medication has been stopped, the drug should be given by mouth in doses of 12 grains (0.8 Gm.) or more a day, depending on the patient's tolerance. It is important to remember that theophylline with sodium acetate is also effective by mouth, and that the cost, when the two are purchased in large quantities, is only about half that of aminophylline. Theobromine with sodium acetate is likewise useful. In fact, in animal experiments which were recently reported this drug was even more efficacious than aminophylline in preventing death after ligation of one of the coronary arteries. Attention has lately been drawn to the possibility that infarction may lead reflexly to coronary vasospasm, and, as the vagus is the efferent path of this reflex, the use of atropine sulfate in an initial dose of 1/60 grain (1.3 mg.) intravenously, followed by 1/150 grain (0.4 mg.) by mouth several times a day for a few days, has been advocated. Preliminary experimental work indicates that this lowers the mortality rate considerably and therefore, if atropinization does not prove to accelerate the heart rate to a dangerous degree, it deserves an extended clinical trial. Many clinicians now administer quinidine sulfate more or less routinely after coronary occlusion, whether or not ventricular premature beats are present. It seems to me that this is sound practice. If, in spite of all precautions, ventricular tachycardia does develop and there is no time to try quinidine by mouth, it may be given intravenously. Ten grains (0.65 Gm.) will dissolve in about 60 cc. of a 5 per cent solution of dextrose and the total dose may be as much as 20 or 30 grains (1.3 to 2 Gm.), depending on the gravity of the situation.

DR. O. P. J. FALK, St. Louis: Relative to treatment of the immediate attack of myocardial infarction, I have found it of value to give ½ to 1 grain (0.03 to 0.065 Gm.) of papaverine hydrochloride intravenously immediately on the appearance of the preliminary pain that the author so accurately described. This drug has been observed to reduce regional vasoconstriction and the tendency to fatal ventricular fibrillation in experimental animals following coronary ligation. Should there fail to ensue sufficient relief following papaverine, I have not hesitated to use morphine intravenously, 1/6 to ¼ grain (0.01 to 0.016 Gm.), diluted with sterile water, given slowly. I feel that the indications for this plan include not only immediate relief from pain and anxiety, in contrast to the distressingly protracted response we have all awaited, following two to three successive hypodermics of morphine. With such treatment not infrequently does one see a patient in pain and anguish for forty-five minutes before relief comes. On the other hand, intravenous medication not only relieves pain and anxiety promptly but probably has a favorable influence on the resultant shock and possibly on the vasoconstrictor reflexes, which are conceded to play an important role in the immediate and perhaps remote outcome of the attack. The use of aminophylline intravenously is at the present time debatable. I have not employed it routinely in the beginning of the attack unless signs of congestive failure appear. In the second week of the attack I do use theophylline with sodium acetate by mouth.

COMPLICATIONS OF ONE STAGE ABDOMINOPERINEAL RESECTION OF RECTUM

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It is instructive to review the complications in any series of cases of a standard procedure. One may avoid some, recognize some early and by so doing institute therapy which may reduce morbidity or mortality. Until Jan. 1, 1942 my associates and I have had an experience with more than 500 cases of one stage abdominoperineal resections for cancer of the rectum, some of the complications of which I will enumerate. In general they are those attendant on any major pelvic operation; some are more common, while others, which one might presume to be frequent, are significant by their absence.

Parotitis is not common (about 5 per cent). It seems to run in cycles, months elapsing between groups of a few cases. Manning[1] at the Cleveland Clinic reviewed a series of cases in which the biophotometer test was made for the level of vitamin A. A low level is reported as a predisposing factor. He was not convinced from his studies of about 75 cases that there was any relationship between vitamin A levels and the development of parotitis. I doubt the efficacy of its preoperative treatment. I have also been through the trial of radium and roentgen therapy and, while it is difficult to evaluate, I am not impressed with its merits. The duration of the process or the percentage of cases that eventually went on to suppuration did not seem to be altered with this treatment. There is sufficient proof that many are mild and subside with no treatment except heat. Our policy at the present time is simple treatment, but if the process is progressive there is nothing so effective as early incision and drainage through the capsule of the gland. The number that go on to definite suppuration is exceedingly small.

PULMONARY COMPLICATIONS

Our series of cases would indicate that these are in definite relation to the incidence of infection in wounds postoperatively. In the early group, which comprises 250 cases, there were several deaths attributed to pneumonia. During this interval records show that there was some degree of infection in 28 per cent of the wounds, whereas in the later 263 cases, in which there was an incidence of 1 per cent of infected wounds, there was but one death attributed to pneumonia. The only change in technic during this time was the institution of interrupted alloy steel wire sutures in the closure of the abdominal wounds. Offhand, one might jump to the conclusion that it is due to sulfonamide therapy, but this is not the case, as will be shown later. The incidence of pulmonary complications which might necessitate this therapy has been greatly reduced by elimination of infection in abdominal wounds.

Atelectasis is very uncommon in our series. We know that the incidence is much smaller in lower abdominal operations than in the upper abdominal group. A review of the last 250 cases shows only 5 cases. At the first appearance of atelectasis, intravenous sodium sulfathiazole or sodium sulfadiazine is given immediately, since most sputums will show pneumococci. Clinically the use of chemotherapy seems to lessen the severity of the reaction to this complication and aids in the prevention of pneumonitis in the collapsed area. Tracheal catheterization is helpful in dealing with atelectasis. This has been ably described by Ransome and Haight from Ann Arbor.

Pulmonary embolism takes its toll, but a review of the cases shows a smaller incidence than one would expect in view of the magnitude of the operation and its extensive pelvic dissection. Most of these cases have ended in sudden death ten days after operation, where no treatment could be instituted. We have used heparin in a few cases after there had been one attack with recovery, but without any change in the end results. These cases gave no evidence of femoral phlebitis before the onset, so that treatment was not instituted for that condition. We presume that the embolus was dislodged from the pelvic or iliac veins. In connection with this problem it is significant to note that we have not seen a single case of femoral phlebitis with its sequelae in this entire group of cases when offhand one might expect a relatively high incidence. The explanation is not clear. Keller,[1a] in reporting a large series of Wertheim hysterectomies, had observed that phlebitis occurred much less often when he used a large Mikulicz dam in the pelvis than when he closed the wound. In that case a large Mikulicz dam which we use to fill up the pelvic cavity posteriorly may serve the same purpose. Also it may be that the extensive destruction of the pelvic sympathetic nerves helps to prevent venospasm in a permanent way, similar to the temporary effect which Dr. Ochsner gets from the injection of the lumbar sympathetic ganglions with procaine in cases of femoral phlebitis, in which he has been so successful in reducing the late morbidity as well as mortality.

PERITONITIS

Foremost among the complications years ago, and the chief cause of death, was peritonitis. I observed on many occasions in my earlier cases that peritonitis was always associated with a dirty infected wound, and it was my opinion that peritonitis was always secondary to it. In cases in which there was no gross contamination whatever it was difficult to explain peritonitis. Following this operation the symptoms generally started about the fourth or fifth day and in most cases were not fulminating from the time of operation. This in association with an infected wound, which would appear at the time, makes me feel that it is secondary to deep wound infection. The peritoneum can kill off infection more readily than a wound. Many of these infected wounds would disrupt, and the mortality in such cases was high as the result of the coincident intestinal obstruction. Brubaker and Newell,[2] in an analysis in a series of 366 of our cases with regard to the problem of infection in relation to wound closure, disclosed the significant fact that in the earlier group, in which wounds were closed with catgut, there was some degree of wound infection in 28 per cent of cases and the mortality varied in years from 9 to 12 per cent, whereas in the cases in which interrupted alloy steel wire sutures were used with simple clip closure to the skin and elimination of stay sutures the incidence of wound infection was 0.85 per cent. In other words, a moderate infection occurred in only 1 of 116 cases in which the wound was closed in this manner. From the stand-

Read before the Section on Surgery, General and Abdominal, at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1942.

1. Crile, G. W., Jr., and Manning, W. R.: Postoperative Parotitis, Am. J. Surg. **50**: 664-667 (Dec.) 1940.

1a. Keller, R.: Drainage et thrombose, Bull. Soc. d'obst. et de gynéc. **26**: 253-255 (March) 1937.

2. Jones, Thomas E.; Newell, Edward T., Jr., and Brubaker, Robert E.: The Use of Alloy Steel Wire in the Closure of Abdominal Wounds, Surg., Gynec. & Obst. **72**: 1056-1059 (June) 1941.

point of mortality it is equally impressive. The mortality in the last 261 cases has numbered 12, or 4.5 per cent, which included one series of 82 consecutive cases without a death. One must speak from one's own experience. I am convinced that this type of closure is accountable for most of the success. I have never been an advocate of intraperitoneal vaccine and neither has intraperitoneal sulfanilamide been used in any case in this series, so that they can be eliminated as a helpful factor. Sulfanilamide has been used in only a few cases in the posterior wound when there was gross contamination due to fracture of the growth. I do not wish to convey the impression that I am not a supporter of sulfanilamide therapy. I am, definitely, but I do not think that it is a panacea and I cannot go so far as some who actually believe that it can replace meticulous aseptic surgery. The care of the colostomy is important. The older teaching that it should not be opened until three or four days after operation for fear of wound contamination is untenable. As a matter of fact, I think it predisposes to it. In our cases the colostomy is brought out in the midline incision. It is occasionally opened immediately after operation and very frequently in the first twenty-four hours if there is any distention of the loop. All that it is necessary to do is to protect the wound adequately with petrolatum gauze, rubber or oiled silk. It should be unnecessary for me to call attention to the fact that, in doing a colostomy, one should never stitch the bowel to the peritoneum, fascia or skin as is so frequently pictured in the textbooks. It invites infection. Diverticulosis is frequently associated with these cases, and if one had distention of the loop for several days it is quite possible that rupture of a diverticulum in the abdominal wall portion of the colostomy would give a fatal peritonitis. I saw this occur one year postoperatively with recovery on opening the abscess, but convalescence was stormy.

Paralytic ileus is uncommon. When ileus occurs it is generally due to mild peritonitis or plastic exudate due to various causes. At the earliest recognition a Miller Abbot tube is inserted and left down until it is safe to remove it. This procedure undoubtedly has saved many secondary operations for obstruction and many a mortality.

Death from hemorrhage is rare. There was one death in our series. It was due to uncontrollable bleeding from a sacral vein where the lesion was adherent to the presacral fascia. Retraction of the vein into the sacral foramen made pressure packing ineffective. Postoperative hemorrhage during this first twenty-four hours occurred only occasionally. I think it is generally due to oozing from vessels over the prostate or upper part of the vagina and responds to further packing for pressure. It is advisable to place a suture ligature in the coccygeal vessel when incising the fascia; otherwise the ligature may easily be dislodged during the packing. Removal of the posterior pack to find the bleeding point has had to be done on only two occasions. Ligation of the inferior mesenteric and the middle hemorrhoidal arteries in cases of arteriosclerosis generally makes the operation hemorrhage proof. The most annoying bleeding comes from venous oozing over the prostate and upper part of the vagina. This brings up the question of shock. I must confess that this picture is entirely unobserved in this series of cases. I could not attribute one single death to shock unless one wanted to call the one death from hemorrhage as being shock. The use of spinal anesthesia with a routine transfusion during operation in all cases eliminates it. The only time we do not use spinal anesthesia is when the patient is elderly and has arteriosclerosis and low blood pressure. Prolonged hypotension postoperatively will give rise to cardiopulmonary or renal insufficiency complications.

INFECTION OF THE URINARY TRACT

By far the most distressing complication is that relative to the bladder. The operation, necessitating as it does the wide pelvic dissection, causes many of the sympathetic fibers which have to do with the physiology of micturation to be destroyed. This altered physiology predisposes to infection, which is most annoying. Cystitis in some degree occurs in about 95 per cent of the cases. The infection is limited to the bladder, clinically. Chills and costovertebral tenderness occur only rarely, 1 per cent. Approximately 15 per cent of the patients will void spontaneously, and in this group the symptoms are mild. Formerly we advocated the use of the retention catheter, but for several years we have resorted to intermittent catheterization, believing that it is the lesser of two evils. Furthermore, in the light of our present day knowledge of urinary antiseptics it may be that continuous drainage does not allow sufficient concentration of the drug in the bladder to be effective. The fever incident to the postoperative reaction usually subsides by the fourth day, followed on the fifth or sixth day by fever due to urinary tract infection, with a slow pulse. The temperature and pulse curve the first postoperative week is characteristic. The average duration of the urinary fever is four days after the commencement of chemotherapy, but it is dependent somewhat on persistence of the residual urine.

About 90 per cent of the bladder cultures show Escherichia coli, Streptococcus fecalis or a combination of the two. Proteus vulgaris and Staphylococcus albus account for the remaining 10 per cent. Other organisms are rarely seen.

Sulfathiazole 7½ grains (0.5 Gm.) four times a day is preferred for Escherichia coli and Staphylococcus albus. Streptococcus fecalis responds to sulfathiazole, but it is my impression that mandelic acid controls the infection more promptly when it is due to this organism. Either sulfathiazole or sulfanilamide 10 grains (0.65 Gm.) three or four times daily will control Proteus vulgaris, but we lean toward the latter. Combinations of Escherichia coli and Streptococcus fecalis seem to respond better to sulfathiazole than to mandelic acid. Sulfathiazole is used for all urea splitting organisms except Proteus vulgaris, where we still prefer sulfanilamide. Sulfathiazole in the small dosage mentioned rarely causes nausea, and no other reactions have been noted. The crushed tablets are easily taken and, if anorexia is present or the fluids by mouth must be limited, sulfathiazole is better tolerated than mandelic acid in any form.

It is undesirable to repeat a course of sulfathiazole regardless of the smallness of the dose, and it is preferable to continue small doses over a longer period than the usual five or six days if a recurrence in the cystitis is feared. We have had 2 cases of severe reaction to a second course, consisting of high fever, dermatitis and conjunctivitis due apparently to an acquired sensitivity to the drug.

About 90 per cent or more of the patients void with a residual urine of 100 cc. or less before leaving the hospital.

At the first appearance of fever due to urinary tract infection a catheterized urine specimen is taken for

culture. Sulfathiazole is begun immediately and continued or the agent changed, depending on the results of the culture twenty-four hours later. Whichever chemotherapeutic drug is chosen is continued for six days. Occasionally second courses of chemotherapy may be necessary, but generally the active infection subsides promptly, apparently depending on the decrease in the residual urine. Pyuria persists for several weeks after discharge, but a recurrence of cystitis after the patient leaves the hospital, provided the residual urine is 100 cc. or less, is rare.

A retention catheter is placed in the bladder before operation and removed after twenty-four hours. The patient is then catheterized every eight hours until he voids spontaneously. The interval between catheterizations then depends on the amount of residual urine. When it drops to 200 cc., catheterization is done once daily until it is 100 cc. or less on two occasions, when catheterization is stopped.

Care must be exercised not to allow the bladder to overdistend. Occasionally at the third or fourth day large amounts of urine will be secreted for a period of two to three days. Under such circumstances a retention catheter is inserted until the polyuria subsides and intermittent catheterization again resumed as aforementioned.

A small percentage of patients who have a persistently high residual urine or cannot void at all for prolonged periods constitute a difficult problem. We treat these patients with an indwelling catheter and intermittent bladder irrigations of potassium permanganate. At the same time a course of acetyl-beta-methylcholine chloride (mecholyl) is given. The treatment is continued for four days at a time. Despite this and other methods the bladder regains its tone at its own rate, and nothing yet tried seems to hurry the process. Therapy, whatever it may be, must prevent overdistention of the bladder and the recurring attacks of cystitis with repeated courses of chemotherapy.

If in men the bladder is not making progress after the patient is out of bed it is well to make a cystoscopic examination to ascertain the presence of obstruction due to prostatic enlargement or median bar. Many will be able to compensate for slight obstruction before operation, which is lost by inability to contract after operation, and occasionally transurethral resection may be necessary. Patients who have any bladder symptoms preoperatively are given a cystoscopic examination before operation, and many times a transurethral resection is done before resection of the rectum to obviate severe bladder symptoms postoperatively. I have never seen permanent damage to the bladder even though catheterization has to be done in some cases for three weeks and was required in 1 case for thirty days.

Epididymitis is rare considering trauma and some drainage from all posterior wounds, which eventually become slightly contaminated. We have seen only three and here there was some history of previous trouble.

Damage to the ureter accidentally occurred in 2 cases. In 1 the ureter was tied and the kidney subsequently removed with recovery. In the other case the ureter was anastomosed over a ureteral catheter. On two occasions the ureter was purposely divided. Both patients recovered, 1 with removal of the kidney and 1 without.

Prolapse of a loop of bowel through the pelvic floor was not seen in a single case, and in the entire series perineal hernia postoperative occurred only once.

Late obstruction occurred but once. It was due to an adhesion kinking the ileum over the pelvic floor.

New growths in the remaining colon occurred three times, all over two years postoperatively, one in the cecum, one in the transverse colon and one in the descending colon.

IMPOTENCE

In many walks of life today sex seems to be taking a very important role. The abdominoperineal resection is no exception. The great majority of these patients, probably 95 per cent, become impotent. Why about 5 per cent (including a man aged 72) should be exempt is difficult to state, since the operation is anatomically the same in all cases. Impotence is probably due to destruction of sympathetic nerve fibers, including the nervi erigentes. Possibly in a few cases they may escape. I know of no way to prevent it if one is to do a radical operation for cancer. Some patients complain at first, but the condition is soon forgotten. Most of it is apparently mental. So far there has not been any suicide on account of it. The patients become philosophical, and the topic of conversation centers about the proper management of the colostomy.

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ABSTRACT OF DISCUSSION

DR. FREDERICK A. COLLER, Ann Arbor, Mich.: Age may well be called a complication in this disease. Mr. Miles, who devised this operation, fixed his limit rather rigidly at 65 years. For many years I followed his teachings and all I had to offer to the older persons was a colostomy. If one will follow these patients, one will find that they die a most dreadful death, with constant tenesmus and pain; the disease does not kill quickly. I have felt that I was wrong, and in the past several years I have been accepting any one of any age, provided there is not some other complication, heart, kidney, and so on, that precludes the operation. Since January 1 I have carried out this operation on 3 people over 80, and they did very well. I agree with Dr. Jones about the importance of the wound. I have just finished an analysis of two hundred and eighty operations of this sort done in our clinic in the last six years and find, as did he, that an infection in the wound is the commonest cause of death. I think Dr. Jones will admit, however, that this technic of his alone may not be entirely accountable for his excellent results. I cannot go along with him on the site of the colostomy. I used his method of the median colostomy in the large wounds for a number of years, and I have a large number of patients with abdominal walls that have a protuberance about the size of a derby hat. I have yet to see true fibrous union between bowel and abdominal wall. I discontinued that and used the stab colostomy on the left side of the median line. In relation to the bladder, I doubt whether the injury to the nerves plays an important part in these difficulties. In the past few months Dr. Eastman, one of my associates, has made cystometric studies of the bladder before and after this operation on 30 patients and has failed to find any evidence of nerve injury in any single instance. After all, the nerves, as far as the musculature of the bladder is concerned, come from the sacral and pudendal reflexes, which are not involved in the planes of this operation. Our management of these difficulties differs from his, but I think we will agree that neither of us has a perfect way of managing them. We use the inlying catheter, using the tidal irrigation. In the clean urine we use boric acid solution, and in the infected urine we use a weak solution of acetic acid. This is left for a week. Usually the patients will void after this time in a satisfactory manner. Frequently, however, they do not, and it is our habit, then, at the end of three weeks, when they should be going home, to examine the prostate and bladder with a cystoscope, and one finds not infrequently that their difficulties are those of prostatism which has just been tipped over by the trauma of the operation, and we are prepared to do a resection at that time, and we do it.

DR. E. PARKER HAYDEN, Boston: I am struck by the similarity in general between the Cleveland Clinic experience and ours at the Massachusetts General Hospital. No case of parotitis has occurred in my series of about one hundred and fifty resections of the rectum for cancer. This is undoubtedly pure chance. I am in accord with Dr. Jones that incision of the capsule is seldom necessary and that irradiation is of questionable value. Our x-ray men feel that it must be instituted early to shorten the duration of the complication. Atelectasis has occurred at intervals in our experience and has usually yielded readily to change of position and forced respiration. In an occasional case, aspiration of the bronchi has given prompt relief. Thrombosis of upper femorals or iliacs has occurred twice in my own experience; in 1 case with repeated and finally fatal emboli within four days of operation, in the other with recovery and a persistent leg enlargement. I do not have personal knowledge of an instance following abdominoperineal resection in our hospital. The likelihood of peritonitis should be slight, because no anastomosis is left within the abdomen. When an abscess is encountered between the bladder and the rectum or a friable tumor is occasionally ruptured during perineal extraction, the free posterior drainage usually prevents peritonitis. Fulminating retroperitoneal infection is more likely and more serious. I am sure that 5 Gm. of sulfanilamide in the posterior wound, combined with oral or intravenous therapy if necessary, is worth while. Dr. Jones's figures with regard to the probable effect of the use of alloy steel wire are convincing, and we should all profit by his experience. The value of early opening of a colostomy at the first sign of distention is unquestioned. The Miller-Abbott tube has practically eliminated the necessity of catheter ileostomy to relieve mechanical small bowel obstruction when it occurs. Urinary and sexual difficulties are certainly the complication which one sees so commonly and which are peculiarly a product of this operation, for the reasons Dr. Jones has mentioned. Dr. Wyland Leadbetter, urologist at the Massachusetts General and Palmer Memorial hospitals, in a study of one hundred and seventy resections of the rectum by different surgeons found serious urinary complications in twenty. Median bar enlargement, with sagging bladder, necessitated transurethral resection in 11 cases, with relief. We have used constant drainage for eight to ten days after operation in most of our cases.

DR. GARNET W. AULT, Washington, D. C.: It is obvious that something new has been added to the chapter on abdominoperineal resection. I don't believe we know of anybody more qualified than the men we have heard present the complications. They have all presented the early complications. It would be of interest to know what are some of the late complications of this disease. One of the most obvious late complications is intestinal obstruction, small bowel obstruction, from adhesions, from volvulus, from twisting or other mechanical defect within the abdomen. Another thing that must come to attention and has been mentioned is volvulus or obstruction around the colonic stoma. This can present itself as an early or late complication. I have seen 2 patients who had this as a late complication. All are patients having a midline colostomy. Those who do a left inguinal colostomy have ample opportunity to close the left colonic gutter. However, in doing a midline colostomy there is not always opportunity to close the left colonic gutter. These patients have a natural internal aperture for hernia. Our method of identifying this is nothing new. It just makes use of the fact that one has a method of examining within the abdomen by inserting the finger in the colostomy, and if one can palpate the strangulated mass it is of some help in the operative procedure. One loop of bowel was gangrenous and was resected following failure of the Miller-Abbott tube. I do not know what the men in Washington do with their colostomies, but we have had two of these accidents. We do not advocate a hard rubber tip. We advocate the ordinary size 28 F. catheter. Another patient gave himself an enema into the mesentery of his sigmoid. Dr. Hayden remarked on the angulation and falling back of the bladder. It does occur. One man was unable to void standing up or sitting down, and it was necessary for him to lean forward and temporarily correct the angulation before urination could occur.

AN ANALYSIS OF THE TRENDS IN CANCER RESEARCH

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It is not surprising that there should exist a degree of skepticism as to the value of experimental cancer research, for it is true that so far no answer has been found to the broad problem of the concrete cause and cure of the disease. Yet during the last four decades an impressive number of definite fundamental facts regarding the nature of malignancy has been established. It has perhaps been difficult for any one outside the field to get a comprehensive picture of the meaning of the progress. Until recently the experimental studies have been developed along three main lines more or less independently of one another. It is now evident that the cancer problem is so complex that no one approach is likely to give the complete answer. With the rapid accumulation of new knowledge it has become progressively more important to attempt the correlation of each advance so that its significance may be appraised in relation to already established knowledge of the subject.

It is my conviction that the mass of knowledge already accumulated from experimental studies demands formulation, and that such formulations, if made periodically, should be of value in giving meaning and direction to further development of the experimental approach. Some three years ago a committee appointed by the Surgeon General of the Public Health Service made an attempt at a "formulation and clarification" on the basis of some of the more fundamental data available on the subject. For the present discussion a selection has been made of a few of the more important contributions which served as a basis for the conclusions arrived at in the report of this committee.

TRANSPLANTATION

The experimental approach to the cancer problem had its beginning at the turn of the century with the discovery that cancer was prevalent in animals and that it could be experimentally transmitted. During the first decade, in spite of bitter polemics over points which later proved to be unimportant and of time wasted on false leads, a sound foundation was laid for the subsequent development of the field. The studies of the period were centered around the transplanted tumor and yielded some fundamental information on the biology of the cancer cell. As this represents the first experimental approach to the problem, the significance of a few of these observations will be discussed in the light of our present day conceptions.

The fact that tumors can be transplanted in series demonstrates that malignancy is centered in the cells, since the new tumors which result from inoculation are formed entirely by the multiplication of the introduced cells. Thus, removed from the environment in which the state has developed, the malignant property of the cells continues its course through years of transplantation, during which time the tumor is supported by hundreds of different hosts. The cytologic characteristics survive long periods in tissue culture, a condition under which the cells have been removed from influences which might be exerted from other tissues.

From the Rockefeller Institute for Medical Research.
Third Barnard Hospital Lecture, read before the St. Louis Medical Society, Nov. 18, 1941.

Even today, many of the first tumors are still carried and still exhibit not only their malignant property but also the particular individual character of the original tumor from which the transplants were started. Of first importance is the evidence that the intimate contact between the host's tissues and that of the tumor, for which it supplies blood vessels and supporting stroma, does not lead to a cancerization of the host cells. In fact, no evidence has been found in mammals of infective agents capable of transferring the malignant character from one cell to another, nor is there evidence that such agents are associated with the continued maintenance of the character.

Transplantation was found to be limited by the same general biologic laws as those governing normal tissue grafting. Conditions which interfere with or aid the take of cancer grafts are operative in determining the fate of normal tissue grafts. Very early it was recognized that success in transplantation depended on the strain or race of animal used, but the full significance of this was not evident until much later. Now it is known that the absence of genetic differences between the cells of the implants and the host is the determining factor. Tumors arising in a pure line inbred strain are transplantable to all animals of that strain and occasionally show such a high degree of specificity that they are maintainable only within animals of that strain. But tumors differ in the degree to which they retain the genetic characteristics of the animal in which they arise. Some, which have shown a high specificity in early transplants, have been observed to lose some of the specificity. This change appears suddenly and, in the most carefully studied instance, was accompanied by an increased growth rate. Indeed, such changes may occur more than once in a given tumor and are considered to represent somatic mutation. If the assumption is correct, and cancer may gain an augmented malignancy through mutation, one is tempted to suggest that the original change from a normal cell may be the result of a similar mutation.

The study of factors influencing transplantability of tumors occupied a prominent place in the early period of cancer research with a resulting extensive literature on the so-called natural, acquired and induced resistance to inoculated cells. It was expected that these investigations would throw light on the body's mechanism for resisting the disease and that the understanding of this would lead to improved methods of treatment; this expectation has not been realized. It has already been indicated that what was called natural resistance is not resistance against cancer as a disease but against the introduced cells of another individual of a different genetic make-up. The method used to induce resistance to transplanted tumors has no effect whatever on the origin or development of spontaneous tumors. Genetic differences between hosts, the tissues used for immunization and the tumor cells appear to be the determining factors, and here again the resistance is against the introduced cells and not against the disease. Today this whole chapter is considered largely of academic interest, and the information collected is principally of value as a study in tissue grafting and has resulted in little direct information on malignancy. The only justification for bringing this subject into the discussion is to illustrate the limitations of the transplanted tumor as material for investigation. However, these limitations may not be so definite when animals of a high degree of genetic homogeneity are inoculated with tumors which have arisen in the strain. Here the tumors are approximate autografts and natural resistance does not exist, nor can resistance be induced by tissue inoculation.

While much of importance as to what may be termed the biology of the malignant cell has come from the study of transplantable tumors, yet "it has not been possible to establish the existence of a strictly specific characteristic of a cancer cell either morphological, immunological, chemical or physical, other than a loss of subordination to the rhythm of division" (Lacassagne). Many claims contrary to this statement have been based on experiments lacking proper controls, a failing not uncommon in this field. It is just this difficulty of finding proper controls which is responsible for many of the controversial claims with which the subject abounds. For a comparison of characters of normal and malignant cells, it is not only necessary to have actively growing tissue, but the tissue should be of the same type as that from which the cancer arose.

GENETIC FACTORS

The investigation of hereditary and predisposing factors in cancer was the second important line to develop in this field. The beginning was a simple test made by several investigators in which it was noted that the cancer rate was higher in the descendants of a cancer mouse than in a general mouse population. On the basis of this observation, systematic investigations of the part played by genetic factors were undertaken. Much was expected from the use of the "pure line technic"; that is, the use of strains so intensively inbred that a high degree of genetic homogeneity was reached. The problem has proved to be far from simple, for it has become evident that a strictly genetic inheritance plays a variable role, being the primary factor in some types of cancer and only of secondary importance in other types. In this field there are many controversial points, and ideas are being constantly modified by new findings. Nevertheless, an impressive amount of positive information has been accumulated.

One of the most important facts to be established is that the inherited tendency or predisposition to develop cancer is not a general character but is confined in the strains of animals studied to a definite organ or tissue type. Thus one family may have the tendency for lung tumors, another mammary cancer, and a third leukemia. There is some evidence that this predisposition for special types of cancer holds also for man. The most suggestive data come from the observations on tumors in identical twins. In over 50 per cent of instances when cancer occurs in such individuals it has affected both twins, has developed at about the same time, has been in the same organ, of the same histologic type, and in some cases the tumors have occurred in the same location of the same organ. More extensive data of this type would be of great value. If the results of animal studies are generally applicable, one could not expect to find evidence of predisposing factors in man until the data are analyzed on the basis of tissue and organ specificity. A small beginning has been made in this direction by Macklin, who has shown that, while the cancer rate for any given large family may not be significantly higher than the general rate for the community, yet in a number of such families which she has studied the occurrence of a specific type is many times higher than the rate for that type in the community as a whole.

The last few years have shown the fallacy of attempts at generalization and the futility of the controversies over the number of mendelian factors involved in the

inherited tendency for cancer in mice. Only one clear-cut example of what appears to be a strong genetic inheritance has so far been established. The tendency for primary cancer of the lung investigated in highly inbred strains of mice, tested by the accepted methods, gives every evidence of being hereditary and represents a dominant character, although the dominance is incomplete. Certain of the data suggest that a single mendelian dominant and possibly modifying genes are involved. The interpretation is complicated by what appears to be a dilution phenomenon, so that the strength of the inherited factor is estimated by the number of foci rather than by the simple absence or presence of tumor. Apparently these different degrees of predisposition to lung tumor are inherited.

The tendency toward cancer of the breast in mice was found to be transmitted in greater intensity by the female than by the male, so this condition could not be due solely to genetic influence. The results of foster nursing have given evidence of the presence of a factor in the milk which definitely modifies or augments the inherited tendency for breast cancer. Briefly, these findings are that mice from a high cancer strain, fostered by a female from a low strain, have a definitely lower breast cancer rate than litter mates nursed by their own mothers. The reverse conditions, namely young from a low cancer strain fostered by females from a high strain, result in a higher mammary cancer rate in the fostered animals than in the controls. The nature of this milk influence is as yet undetermined, nor are there sufficient data at present to justify an evaluation of the relative importance of this in relation to genetic factors or other possible extrachromosomal factors. So far the effectiveness of the milk influence has been established only for mammary cancer, but leukemia tendency, like breast cancer, shows some indication of being transmitted more strongly by females than by males. In any deductions drawn from these results, consideration should be given to the possibility that the cancer tendency may be secondary to or dependent on some other inherited condition. This possibility is suggested by observations on a strain of rabbits with an inherited tendency to develop an endocrine unbalance. Resultant abnormalities in development and function of the mammary gland frequently progress into a malignant condition. Furthermore, the fact that cancer of the breast may be induced by excessive doses of estrogenic substance suggests the possibility that the endocrines may play a role in the general picture.

It is evident from the foregoing account that the importance of genetic factors is variable. The tendency to develop some types of malignancy is definitely inherited; in one type the inherited tendency is somewhat modified by undetermined conditions, while with breast cancer the milk influence seems to be more dominant in determining the tumor incidence than the genetic constitution. Regardless of the nature of the inherited and predisposing factors, the manifestations are the same; these appear to be an unstable or poorly balanced cell system, confined for the most part to an organ or tissue type. There is evidence that some factor or condition is required to bring out the malignant potentiality.

CARCINOGENIC AGENTS

The third important field of investigation to be developed, and one which is occupying the attention of a large group of workers, is the experimental induction of tumors by so-called carcinogenic agents. The report on chimney sweeps' cancer published in 1775 by Percival Potts was the first recorded account of cancer associated with chronic inflammation. By the beginning of the present century a number of physical, chemical and infectious agents causing certain types of chronic irritation were known to be associated with the onset of the disease. In the early reports from the Imperial Cancer Research Fund, Bashford noted "the association of cancer with peculiar and very different forms of irritation." He commented "that, as data increase from year to year, the mediate relation between irritants and cancer in particular sites of the body becomes more and more significant." Yet the leads so evident from this information received no attention from the group of experimental investigators until some years later. It remained for Fibiger to show a possible association between an induced nematode infection and cancer of the rat's stomach, and for two Japanese investigators to induce cancer in rabbits by the application of coal tar. This study of the chemical carcinogenic agents has developed rapidly into the most active field of cancer research. By 1937 a review of the subject contained over four hundred references.

The search for the particular component of coal tar responsible for the cancer producing property led to the discovery of the numerous carcinogenic hydrocarbons: first dibenzanthracene, then benzpyrene and then methylcholanthrene. The latter, methylcholanthrene, is of special interest because it can be derived chemically from bile salts and because of its structural similarity to sex hormones, vitamin D and other naturally occurring physiologically active compounds. Extensive attempts have been made to find a particular grouping of radicals common to all the components which would be responsible for their cancer producing property, but it was soon found that this property was shared by compounds unrelated to the hydrocarbons and even by simple chemicals. When it is considered that x-rays, radium, ultraviolet light, infectious agents and larger parasites all may produce chronic lesions which have the same tendency to become malignant, it is evident that the carcinogenic agents have nothing in common among themselves except the effect they produce in the tissues. The mechanism by which the tissue changes are induced by these various agents has not yet been clarified.

There is still no understanding of the mode of action of the carcinogenic agents. Some of the earlier workers, impressed by the systemic effects following local applications, suggested that the activity of the agents depended on the possession of two properties: (1) the induction of local tissue disturbance and (2) the general interference with the body's mechanism for controlling such a disturbance. Recent investigations have led to the conviction that this conception is erroneous. Simple chronic irritation as the principal factor may be ruled out, and there is no evidence that the agents possess the property of direct stimulation of growth. As a matter of fact, many if not all of the carcinogens tend to inhibit growth of cells, even cancer cells. Comparatively small amounts of the chemical agents will cause permanent stunting of young animals, and local application will retard the development of large regions of an embryo. This property may be a clue to the mode of action. The production of a certain amount of tissue damage with a suppression of regenerative processes could represent just the unfavorable condition under which cells might mutate with the development of a new growth property. The expectation that, with methods for producing tumors at will, it would be pos-

sible to follow the stages leading up to malignancy has not been fully realized. Little more can be said than that, in the midst of chronically deranged tissues, areas are found in which the cells have assumed the malignant character.

That new properties of cells may develop under the influence of carcinogens has been illustrated by some very recent experiments. It is true that these studies deal with a highly specialized type of agent, but it still may represent a lead for investigation by others. The production of liver cancer by the azo dye butter yellow in animals on a deficient diet and the prevention of the carcinogenic effect by additions to the diet offers a chance to establish the mechanism in at least one instance. This work is too recent to be conclusive yet, but there is evidence that a breakdown product of the dye affects certain enzyme systems of the liver cells and that cancer cells resulting from this action show a certain amount of immunity to the toxin. This study offers promise for further elucidation of the mechanism through which the agents may act.

ORGANIZATION OF EXPERIMENTS

In the more modern development of cancer research, investigators are showing greater care in the organization of experiments, the elimination of variables and more interest in obtaining information on normal cell processes. As factors in experimental results, whether in transplantation or induction of tumors, the importance of genetic constitution and predisposition has become more and more evident. Strains of animals inbred to a point where there is a high degree of genetic homogeneity are now considered almost essential for important experiments. In selecting strains for any given test it is equally essential to have full information as to hereditary and predisposing factors for the various types of malignancy possessed by the animals utilized. Reference has already been made to the fact that much of the confusion with regard to "resistance" to transplanted cancer was clarified by the use of pure line animals. Furthermore, it has been established that the degree of predisposition for several types of malignancy may be determined by the use of carcinogenic agents. Thus, in selected strains, mice with an inherited tendency for lung cancer if exposed to the action of coal tar will develop lung cancer at a much earlier age and to a higher percentage of the animals than would normally occur. Mice without the predisposition, exposed to the same agent, will show only an occasional lung tumor. Hybrids of various types involving high and low tumor strains may have an intermediate lung tumor rate, and this lessened predisposition is evidenced by the lower response to the carcinogenic agent. In fact, the degree of the inherited potentiality for lung tumor may be accurately gaged by this method and is reflected not only by the number of animals which develop lung tumors but also by the number of foci in the individual lungs. The same conditions seem to hold for leukemia and mammary cancer. The former may be induced by carcinogenic agents, but only in strains having a predisposition for the disease, and the induction of mammary tumors by estrogens is most successful in strains with a high natural tendency for mammary cancer.

Studies of the kind just referred to may be considered as attempts to evaluate the relative importance of hereditary and predisposing factors on one side and inciting factors on the other side. There is little doubt that cancer is far more readily induced in strains with definite predispositions. The fact that it is difficult or even impossible to induce tumors in species which rarely or never develop malignant tumors spontaneously, such as pigeons and guinea pigs, suggests that the response to a cancer inciting agent is definitely determined by factors inherent in the strain or species.

VIRUSES

There is insufficient indication at present that viruses play any important role in the general picture; therefore no attempt will be made to discuss at length the possible relation of this group of agents to cancer. The only evidence of importance in this field is derived from the study of a group of fowl tumors which may be transmitted by filtrable agents. As no mammalian malignant tumor has yet been transmitted except by living tumor cells, the relationship of the fowl tumors to mammalian tumors cannot be considered as established. Furthermore, there is no agreement as to the nature of the transmitting agents and their relationship to the viruses. In rabbits, cancer may develop in virus induced papillomas, but here the stages of the process so closely resemble the conditions accompanying the induction of tumor with chemical carcinogenic agents that we are inclined to consider that the virus has no closer association with the eventual cancer than have the chemical agents. In the absence of evidence that the virus is necessary for the continuation of the malignant state and that cancers can be transmitted by the virus, it should be considered merely as having started a process which tends to go into malignancy. Like the chemical and physical carcinogenic agents, it is probably not further concerned with the process.

CAUSE OF CANCER

In a general consideration of the cancer problem and the interpretation of the new experimental findings, it became evident some years ago that it was necessary to define what was meant by the term "cause of cancer." Ewing clarified this by pointing out that there were two questions involved: what he termed the causal genesis of tumors has to do with the inciting factors leading up to the development of the malignant state. The formal genesis has to do with the factors responsible for the nature of the cancer cell and its unlimited capacity for growth. A host of agents chemical, physical and biologic known as carcinogens are involved in the causal genesis of cancer, but they may be considered as only starting a series of tissue events or conditions tending to progress into malignancy. Once the malignant state is initiated, these agents have no part in maintaining it.

Considerable information has been accumulated on the causal genesis of cancer, both as to the variety of agents involved and as to the mode of action of some of them. It is through the more complete understanding of this phase that preventive measures may be expected to develop. It is probable that substantial advancement in the methods of treatment will come only with a fuller knowledge of the formal genesis or the mechanism by which the growth capacity of the cancer is maintained. Unfortunately, this important part of the cancer problem is still little understood. If some substantial specific characteristics of the cancer cell could be established, it would serve as an opening lead; but no such character, other than the capacity for growth, has yet been found. The solution here may depend on a further

understanding of the factors which control normal growth and differentiation of cells. Much may be hoped for with the development of newer methods in the intensive work which is in progress along these lines. One such method, the mechanical separation of the various cell components without disruption of their complex units, is yielding valuable new information. Mitochondria, several different types of secretory granules, the minute particles making up the "fundamental ground substance" and the chromatin material may all be secured in relatively pure form and in sufficient amounts for quantitative and qualitative studies. Thus a new basis for comparison of normal and cancer cells is being established. Another investigation which may yield fundamental information on the mechanism involved is based on the observation that certain carcinogenic agents have a selective toxic action on one of the enzyme systems of the cell and that the cancer cells which develop as the result of exposure to this agent have an immunity to the toxic effect. These may seem feeble beginnings to the understanding of the formal genesis of cancer, but the approach to this, the core of the problem, has been particularly difficult. It is to be hoped that those interested in cell physiology, growth and differentiation of tissues may be challenged by the fundamental nature of this phase of the cancer problem.

CONCLUSIONS

The material for the discussion was selected with the idea of showing that sufficient knowledge has already been accumulated to justify the attempt to deduce certain concrete truths and to formulate certain phases of the cancer problem. It is considered that the experimental results which have been reviewed offer definite support for the following conclusions:

1. Malignancy is a universal cell potentiality in that any cell has inherent in its makeup the potentiality for unlimited or uncontrolled growth.

2. The degree of this potentiality for malignancy is a variable quantity for each tissue or cell type, and this degree is determined largely, if not entirely, by hereditary or predisposing factors.

3. The malignancy potentiality of a cell may be developed in the more sensitive groups by the strain of normal physiologic processes but may be set off even in resistant groups by a variety of inciting agents.

4. The change from a normal to a malignant cell represents an alteration in the cell itself, by virtue of which proliferation becomes an automatic process independent of a continuously acting provocative agent.

5. The new property of the cell appears to develop suddenly, and this becomes a fixed character which is transmitted to all its descendants. It may possibly be the result of a somatic mutation.

At the present time there is no theory as to the nature of cancer sufficiently comprehensive to be taken seriously. In fact, the investigator has come to adopt the attitude that, in this field, a theory not susceptible of experimental examination is not worth discussing. Attempts in the direction of theory building are not advocated now, for there is insufficient knowledge to justify this. But it is believed that much is to be gained by more serious attempts to sort out existing knowledge with the expectation that some sound deductions may be made, which in time will form units from which may be built up a comprehensive formulation of the fundamental cancer problem.

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FRACTURES OF THE FOREARM IN CHILDREN

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"Fractures in children are different," and forearm fractures offer many examples in proof of this theme. They must not be considered along with fractures of adults under anatomic classifications which take no account of the growth factor. They are different as to pathologic conditions, treatment and prognosis. Intelligent management must recognize this fact.

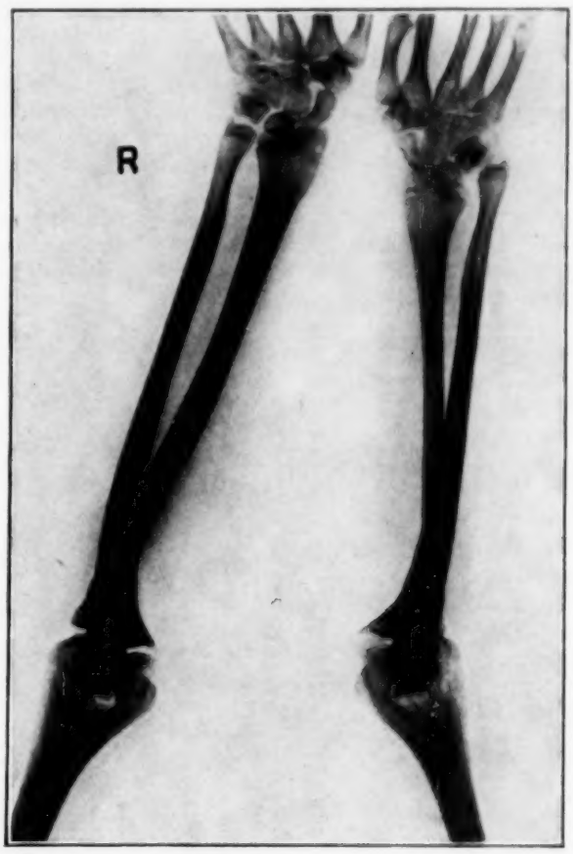

Fig. 1 (case 1).—Anteroposterior views of both forearms at 15 years of age, nine years after removal of the radial head for displaced fracture of the radial neck. Note the short, small radius with radial deviation of the hand and increased carrying angle. These anatomic conditions are associated with weakness and some discomfort.

The common forearm fracture in the adult is that described by Colles [1] with impaction of the lower end of the radius and with a fracture of the tip only of the ulnar styloid. In children, on the other hand, the commonest fracture is one of both bones at a higher level, 1 or 2 inches above the wrist joint. Greenstick fractures are common in children and rarely occur in adults. Perhaps the best example of the differences in the pathologic condition and in the prognosis with diametrically opposed principles of treatment is at the proximal end of the radius. Fracture of the radial head in the adult is frequently comminuted with involve-

From the Fracture Service of the Milwaukee Children's Hospital.

1. Colles, Abraham: On Fractures of the Carpal Extremity of the Radius, Edinburgh M. & Surg. J. **10**: 182, 1814; reprinted in the Medical Classics, Vol. 4, chap. 10.

ment of the cup shaped articular portion. In the child there is usually a fracture through the neck with more or less displacement of the entire unbroken radial head. In the adult it is generally wise to excise the fractured head when there is displacement of the fragments. Treatment of the slightly displaced radial head in a child requires no therapy other than brief immobilization. Displaced fractures usually require open reduction, but the head should never be resected (fig. 1), always replaced. Eventual complete recovery may be expected in the child. Some residual disability may be expected in the adult.

A systematic study was made of all fractures occurring in children including end result studies at yearly intervals, many check-ups after closure of the epiphyses and some ten year studies. Two hundred and seventy-one fractures of the forearm were treated by the fracture service of the Milwaukee Children's Hospital in the period between 1935 and 1941 inclusive. Unusual and interesting cases were added from the private files of the attending surgeons. We have had the benefit of studying the end results of open reduction in the earlier Children's Hospital cases. The unpublished cases of colleagues who volunteered reports at the exhibits that have been conducted by the fracture service have disclosed the shocking occurrence of complications. This material has formed the basis for certain convictions which might sound dogmatic if they were not substantiated by clinical proof.

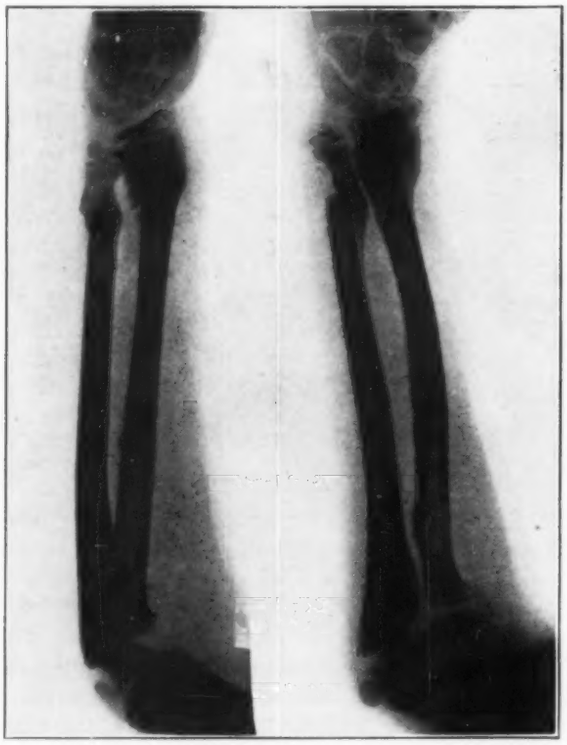

Fig. 2 (case 2).—Anteroposterior and lateral views of the forearm at 11 years of age, two months after an open reduction on the radius. The patient wore a splint for four months following the operation. The delayed union was not due to malposition but was definitely associated with the open reduction. Three years after the operation the patient still complained of pain and inability to play a violin or to engage in active sports. He gradually became symptom free after four years.

With the exception of the radial head, which frequently requires open reduction according to the technic so well described by Key,[2] we have found almost no fracture in the forearm which cannot be treated better by closed methods than by open. When open operations have been done elsewhere there have been instances of nonunion or other complications to report. In our old files we have no example of nonunion following open reduction in the forearm but several of malunion and delayed union (fig. 2).

With fractures of the forearm in adults accurate reduction is most desirable and open operation is not infrequently necessary. In children under 12 years of age accurate reduction is desirable but good apposition is not essential. It is amazing to read an article published as late as September 1941 advocating anatomic reposition.[3] The younger the child and the nearer the end of the bone, the more leeway one has. A perfect functional result and after a year a perfect anatomic result will ensue without any apposition in a young child as long as the alinement is reasonably good. In such a case even the alinement need not be good in fractures of the distal end of the bone. In fractures of the middle third of the forearm accurate alinement is imperative, because growth does not so greatly influence angulation at this level. Persistent angulation will almost invariably result in some permanent limitation of pronation or supination.

Fig. 3 (case 3).—Refracture of the middle third of both bones of the right forearm with gross displacement.

FRACTURES OF THE UPPER THIRD OF THE FOREARM [4]

Fractures of the upper third of the forearm are relatively rare. They comprise 6.9 per cent of the forearm fractures in our series. They are frequently caused by direct trauma. Sometimes only one bone is fractured, but care should be taken to distinguish the characteristic association, which will be discussed later, of a dislocation of the radial head with fracture of the

2. Key, J. Albert: Treatment of Fractures of the Head and Neck of the Radius, J. A. M. A. **96**: 101 (Jan. 10) 1939.

3. Thorndike, Augustus, Jr., and Dimmler, Charles L., Jr.: Fractures of the Forearm and Elbow in Children, New England J. Med. **225**: 475 (Sept. 25) 1941.

4. Fractures of the radial head will be discussed at a later date under the title "Fractures About the Elbow."

proximal end of the ulna. The diagnosis offers no difficulty if roentgenograms are taken of both elbows, but a greenstick fracture is otherwise occasionally overlooked or confused with an epiphysis.

Fractures of both bones of the upper third of the forearm in children as in adults are difficult to reduce accurately. The problem of the strong pull of the pronator radii teres on the distal fragment is the same. In general, the fracture should be reduced and reduction maintained with the distal portion of the forearm supinated in an attempt to aline the distal fragments with the proximal, which are strongly influenced by the supinator muscle and the biceps. This position alone combined with traction will usually suffice to aline and appose the fragments accurately. Apposition is not as necessary as it is in adults. Alinement is essential, but if the ends of the bones are not engaged it can easily be maintained by skin traction on the hand. Decolage, or intrinsic rotary displacement of the radius, was emphasized by Destot [5] as a factor in producing limitation of pronation in adults. In children, rotational deformity frequently persists for several months but will entirely disappear after that time in fractures of the upper third of the forearm.

A lightly padded cast from the axilla to the knuckles with the elbow in an extension of 120 degrees and the forearm completely supinated is usually adequate treatment. It should remain on at least four weeks. If there is overriding of the bones without apposition of the fragments to control length, banjo traction on the fingers should be added.

Fig. 4 (case 3).—Appearance of the bones six months after simple cast fixation with good alinement but no apposition. There is slight restriction of pronation and supination.

FRACTURES OF THE MIDDLE THIRD OF THE FOREARM

Fractures at the middle of the forearm occur more frequently than those of the upper third and in our series comprise 17.7 per cent of the forearm fractures. They usually involve both bones, although a single bone is more commonly fractured in children than in adults. This was the radius in 91 cases and the ulna in 17. Although indirect force will occasionally break only one bone, such a fracture is usually caused by direct violence.

Fractures of both bones with displacement are frequently very difficult to reduce. Open operation was used occasionally in the earlier cases but is difficult to

Fig. 5 (case 3).—Appearance four years later. Clinically and roentgenologically the left forearm is indistinguishable from the right.

justify in the light of our experience (figs. 3, 4 and 5). In the middle third alinement is most important, apposition less so. "Bayonet" apposition is satisfactory. Shortening is not desirable but is not of permanent consequence. Even a small amount of angulation will result in cases of prolonged healing and, in older children, permanent limitation of pronation and supination. In a young child this limitation of rotation causes very little inconvenience but is none the less a deformity.

Since the day of Hippocrates there has been and still is an active discussion of the degree of supination in which forearm fractures should be immobilized. Hippocrates [6] warned against supination and advocated midposition or slight pronation, while Paré [7] urged midposition. At first no differentiation was made as to level. Most of the early writers, including Malgaigne,[8] Volkmann,[9] Destot,[10] Helferich,[11] Lonsdale [12] and Ashhurst,[13] advocated supination even for fractures of the distal end. Their choice of position was influenced in

5. Destot, E.: Pronation et supination de l'avant-bras dans les lésions traumatiques, Press méd. **21**: 41, 1913.

6. Hippocrates: Hipprocrates, English translation by Dr. E. T. Withington, Loeb Classical Library, London, William Heinemann, 1927, vol. 3, p. 95.

7. Paré, Ambroise: Opera Ambroise Paré, First Latin Edition, Paris, J. Du Puys, 1582.

8. Malgaigne, J. F.: A Treatise on Fractures, translated from the French by John H. Packard, Philadelphia, J. B. Lippincott Company, 1859.

9. Volkmann, Richard: Ueber den Verlust der Pronations- und Supinations- bewegungen nach Brüchen am Vorderarm, Berl. klin. Wchnschr. **5**: 193, 1868.

10. Destot, E.: De la perte des mouvements de pronation et de supination dans les fractures de l'avant-bras, Lyon méd. **112**: 61, 1909.

11. Helferich, H.: On Fractures and Dislocations, translated from the third edition by J. Hutchinson, London, New Sydenham Society, 1899, p. 93.

12. Lonsdale, E. S.: A Practical Treatise on Fractures, London, J. Churchill, 1838.

13. Ashhurst, A. P. C., and John, R. L.: The Treatment of Fractures of the Forearm, with Notes of the End Results of Fifty-Two Cases Treated Without Operation, Episcopal Hosp. Rep. **1**: 224, 1913.

part by the use of wooden splints. Since the advent of plaster of paris and the roentgenogram, midposition is usually selected for fractures of the middle third.

If there is overriding of the bones a simple cast or splint is not satisfactory for preservation of the length and alinement. We recommend traction with a banjo

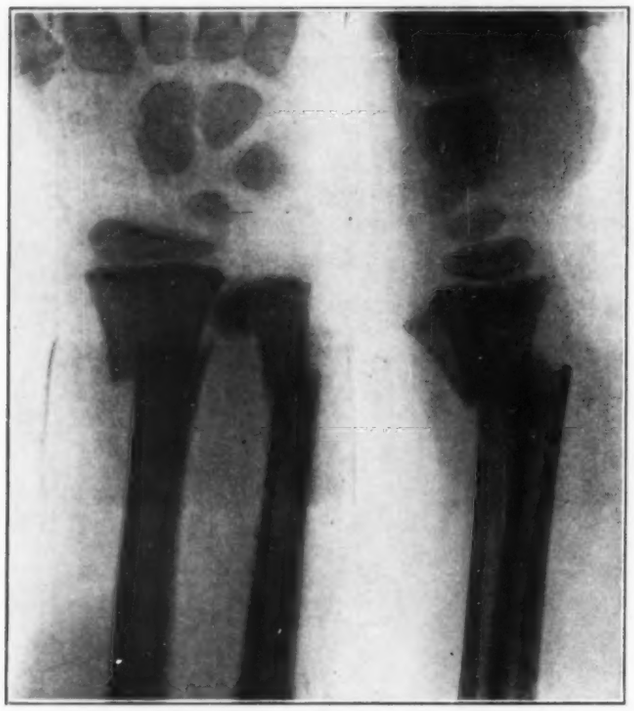

Fig. 6 (case 4).—Anteroposterior and lateral views of the left wrist of a 5 year old boy following unsuccessful attempts at closed reduction.

splint incorporated in a cast as the ideal treatment if reduction cannot be accomplished.

Refracture of the two bones at the same site as the original fracture is very frequent during the first six months after the original fracture. Cross union, which was mentioned by Cole and Evans,[14] has not been observed by us.

An isolated fracture of the radius or ulna in the middle third of the forearm of an older child will occasionally defy reduction by closed methods. The angulation cannot be overcome because of the effect of the sound bone. If the complete displacement is associated with considerable angulation, the deformity will be apparent for a long time. There is a definite hazard of permanent limitation of pronation or supination. In such a case, and under ideal conditions, open reduction may be justified. Internal fixation is not necessary. With conservative treatment the end result will be a nearly normal forearm with no subjective symptoms or any significant restriction of movement. One should, therefore, urge that a conservative course be followed unless there is an ideal opportunity for open reduction.

A greenstick fracture of one or both of the fractured bones is frequently encountered in children. If such an incomplete fracture is bent just straight, as has been recommended elsewhere,[14] the bone is liable to angulate again into deformity during the first two weeks of immobilization. This recurrence appears to be associated with both the muscle pull and the deposition of callus. With attempts to maintain incomplete reduction by pressure pads or lead pencils incorporated into plaster, we have seen pressure sores and even Volkmann's contracture.

If both bones are broken entirely through, as recommended originally by Malgaigne,[8] retention is easy. We have never seen any displacement of fragments associated with this procedure which has been carried out routinely in all greenstick fractures. The completion of the fracture is accompanied by a loud snap. The maneuver may be performed without anesthesia within the first hour or two after the injury with very little discomfort other than a momentary twinge of pain. After a longer time has elapsed, an anesthetic is desirable. Fixation should include the elbow. A cast from the axilla to the knuckles with the forearm in midsupination and the elbow flexed to 100 degrees is an ideal dressing. The cast should remain on at least four weeks.

MONTEGGIA'S FRACTURE

An isolated fracture of the ulna with dislocation of the radial head occurred only three times in our series. It is usually caused by a fall on the outstretched hand but it may be caused by direct force. The diagnosis offers difficulty only in that in children the dislocation of the radial head may be overlooked. Accurate roentgenograms are essential, and the opposite elbow should be included.

If seen promptly, such a fracture may usually be reduced by the closed method. When the dislocation

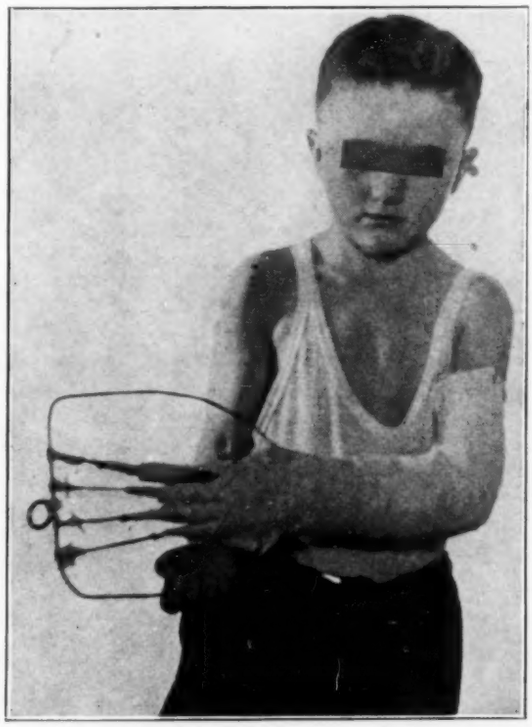

Fig. 7 (case 4).—Appearance after application of a traction cast without the use of an anesthetic.

is reduced the radius serves as a splint and the ulna is frequently pulled into position and requires no fixation other than the supportive dressing which is applied to the elbow. The collar and cuff method of Sir Robert Jones is a good one for maintaining flexion. An elastic bandage about the elbow will prevent swelling and will give some support. Occasionally there will be angulation which cannot be overcome. It has never been seen to a degree sufficient to warrant open reduction. In

14. Cole, W. H., and Evans, E. T.: Fractures in Children, Staff Meet., Bull. Hosp. Univ. Minnesota **9**: 327, 1938.

cases several days old and occasionally in fresh ones it is impossible to reduce the dislocated radial head without open operation. Open operation is then necessary for reduction of the radial head and reconstruction of the orbicular ligament. In 1 of the early cases, the dislocation was overlooked and an open reduction

Fig. 8 (case 4).—Anteroposterior and lateral views of the left wrist five weeks after the fracture and at the time the traction cast was removed to be replaced by a simple splint. Note the complete displacement of both bones but with fair alinement and the massive callus. Compare with the inadequate callus at two months in figure 2.

done on the fractured ulna. Poor alinement was obtained but good bone union resulted. The appearance in the roentgenogram was bad. The ten year end result study showed excellent function, although the radial head was palpable and visible under the skin and moved around without hindrance. The child could throw a ball with his affected right hand, had no pain and had normal strength and range of motion. This almost incredible result is evidence of the fact that there is no need during childhood for removing the radial head. There have been numerous unreduced dislocations of the radial head observed in our series. Although the hypermobility of the radial head is distressing to the surgeon and to the parents, it apparently causes the child no inconvenience.

When the radial head is removed in a young child the inevitable sequel is a deformity of the wrist with radial deviation of the hand, shortening of the radius, weakness and sometimes pain (fig. 2).

FRACTURES OF THE LOWER THIRD OF THE FOREARM

Greenstick fractures of the lower end of the radius with or without a greenstick fracture of the lower end of the ulna occur frequently with angulation of 5 degrees or less. These require no treatment other than brief splinting to relieve pain. Complete fractures or greenstick fractures with angulation of more than 10 degrees should be reduced. When there is no loss of apposition, straightening the angle is a simple matter. There is a strong tendency to recurrence of the angulation with the apex volarward, however. This usually occurs in the first three days following reduction, probably mostly during the patient's recovery from anesthesia. Occasionally it has been necessary to reduce a fracture a second time at the end of ten days. Extreme volar flexion of the wrist (the so-called Cotton-Lodar position) has little effect in preventing this recurrence of deformity. Complete pronation of the forearm as advocated by Levinthal [15] has been used in some of the cases but does not entirely overcome this difficulty.

Fractures in which both bones are completely displaced are frequently troublesome. If one bone, usually the ulna, is left in apposition, it may be used as a lever to reduce the other. If both bones are entirely off it is well to angulate the fragments with the apex volarward to 90 degrees, force the distal fragment down, engage one or both bones and then straighten out the angle as advocated by Lorie.[16] This can well be performed in pronation.

One can usually determine the position of the fragments by palpation. Fluoroscopic control is of value in fat children or in case swelling obscures the bony landmarks. The usual persistent deformity is dorsal displacement of the distal fragment of the radius. Occasionally this cannot be reduced by closed methods

Fig. 9 (case 4).—Showing normal appearance of the wrist at the time of removal of all fixation.

because of the interposition of muscle tissue between the bone ends. But this situation does not require open operation. A cast with simple traction to maintain alinement of the bones with bayonet apposition gives a

15. Levinthal, D. H.: Fractures of the Lower One Third of Both Bones of the Forearm in Children: Manipulative Reduction, Surg., Gynec. & Obst. **57**: 790 (Dec.) 1933.

16. Lorie, Jose Perez: A Manual Procedure for Setting Over-Riding Fractures of the Lower Third of the Forearm in Children, La Revista Vida Nueva en el Numero Correspondiente **42**: (Oct.) 1938.

most satisfactory result (fig. 7). Union is rapid. Occasionally a clear zone surrounded by callus is evidence of the site of the muscle tissue. This rapidly becomes calcified, however, and there seems to be no deleterious effect from the interposed muscle.

There is a definite objection to open reduction. While many surgeons have performed this operation with impunity many times on the lower end of the radius in children, a number have reported delayed union, nonunion or infection. Nonunion requiring a bone graft is not infrequent. It is common knowledge that a successful bone graft is often difficult to obtain in a child. Delayed unions following open reductions are not uncommon. The exact reason for this is not apparent. Several theories have been offered such as interference with periosteal blood supply, removal of blood clot with its stimulating bone extract and simple mechanical interference with healing. The fact remains that, with

Fig. 10 (case 4).—Anteroposterior and lateral views of the left wrist eight months after the fracture. At the end of a year it was impossible to distinguish the fractured wrist from its fellow by roentgenograms.

simple traction in a cast which is loose enough to avoid ischemia, even a badly displaced fracture of the lower end of both bones will result in good function.

EPIPHYSIAL FRACTURES AT THE DISTAL END OF THE RADIUS

Fractures of the distal epiphysial line of the radius usually cause no difficulty. Closed reduction is usually easy, and perfect alinement and apposition are the rule. Slight angulation with only as much as 50 per cent apposition may be considered satisfactory. The results are better with prompt reduction. We prefer to leave an imperfect reduction rather than to attempt a delayed (ten days) reduction of such epiphysial fractures. In cases in which treatment was given elsewhere, repeated trauma had apparently been a factor in producing growth disturbance from premature closure of the epiphysis. Certainly growth disturbances are more frequent with open operation than with closed. It is significant that in the writings of such men as Cotton,[17] who advised open reduction of distal epiphysial fractures of the radius, the incidence of gross bony deformity is rather high. The old idea that accurate reduction is necessary to prevent growth disturbances must certainly be abandoned. In our series of 16 cases, some of which were not completely reduced, there was no case of growth disturbance of more than 3 mm. except for one of 5 mm. of overgrowth. In the interest of preserving the integrity of the epiphysial lines, delayed osteotomy should be considered in preference to a late open reduction.

SUMMARY

1. Fractures of the forearm in children are different from those in adults and should be differently treated.

2. There is a definite hazard associated with open reduction of fractures of the forearm in children.

3. Except at the elbow, open reduction of forearm fractures is difficult to justify in children.

4. Greenstick fractures of the middle third should be reduced by completing the fracture in the interest of maintaining alinement.

5. The radial head should never be removed in a child.

6. If conservatively treated, most epiphysial fractures of the distal end of the radius will heal without disability.

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Clinical Notes, Suggestions and New Instruments

VIRUS OF WESTERN EQUINE ENCEPHALITIS IN THE SPINAL FLUID

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Recovery of the virus from the cerebrospinal fluid of patients with encephalitis has rarely been reported. There are only 2 reports of this in the medical literature.[1]

During the epidemic of western equine encephalitis in Manitoba in July and August 1941, positive results were obtained with the spinal fluid from a 6 weeks old baby admitted to the hospital on August 19 with fever and convulsions which had become apparent the previous day. Lumbar puncture was done on admission. The fluid was slightly cloudy and contained 998 cells per cubic millimeter, 80 per cent of which were polymorphonuclears. There was a decided increase in globulin content. Organisms were not found on smear or culture.

On August 20, guinea pigs 1 and 2, each weighing approximately 300 Gm., were each injected intracerebrally with 0.2 cc. of spinal fluid from this patient. Guinea pig 2 remained well. On August 26 the hindquarters of guinea pig 1 became paralyzed. The animal was killed with ether and the brain removed aseptically. One half was stored in sterile buffered glycerin solution. The other half was ground up in a sterile mortar with sterile sand and sufficient sterile 0.9 per cent saline solution was added to make a dilution of approximately 1 in 100. After the emulsion had stood for an hour 0.2 cc. of the upper part was injected intracerebrally into guinea pigs 3 and 4. Five days after injection, August 31, guinea pig 3 was found dead. The brain was removed and stored in sterile buffered glycerin solution. Guinea pig 4 remained well.

On September 2 a portion of the brain from guinea pig 1, which had been stored in glycerin, was treated the same as the other half of the brain had been and 0.2 cc. of the emulsion

17. Cotton, Frederic J.: Dislocations and Joint Fractures, ed. 2, Philadelphia, W. B. Saunders Company, 1924, p. 370.

From the Children's Hospital.

1. Fothergill, L. D.; Holden, Margaret, and Wyckoff, R. W. G.: Western Equine Encephalitis in a Laboratory Worker, J. A. M. A. **113**: 206 (July 15) 1939. Buss, William, and Howitt, Beatrice: Human Equine Encephalitis in Kern County, California, Am. J. Pub. Health **31**: 935 (Sept.) 1941.

injected into guinea pigs 5 and 6. Five days later guinea pig 5 had paralysis of the right hind limb and later in the day also paralysis of the left hind limb. On the same day guinea pig 6 had paralysis of the right hind limb. The following day there was a decided retraction of the muscles of the back in guinea pig 5. The animal was killed and the brain removed and placed in sterile buffered glycerin solution. For the next few days guinea pig 6 appeared to be recovering, but by the end of another week it became apparent that this was not the case. The animal was then killed and the brain stored in buffered glycerin.

A portion of the brain from guinea pig 1, stored in glycerin, was sent to Dr. H. R. Cox at the Rocky Mountain Laboratory in Montana, who isolated the virus of western equine encephalitis from it.

Blood was withdrawn from the patient on August 22 during the acute stage of the illness. The serum was sent to Dr. L. T. Webster at the Rockefeller Institute in New York City to be tested for complement fixing antibodies. The results were negative for the viruses of eastern and western equine encephalitis, St. Louis encephalitis and lymphocytic choriomeningitis. In a second specimen, taken September 6, the presence of complement fixing antibodies for western equine encephalitis was demonstrated, the results being negative for eastern equine encephalitis, St. Louis encephalitis and lymphocytic choriomeningitis.

A stool specimen was taken from the patient on August 26 for investigation by Dr. J. R. Paul of Yale University; no virus of poliomyelitis or of encephalitis was recovered.

A blood specimen, withdrawn October 2, was sent to Dr. Cox. In this he determined the presence of neutralizing antibodies for the virus of western equine encephalitis.

The baby made a complete recovery.

EXFOLIATIVE DERMATITIS DUE TO DIETHYLSTILBESTROL

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Exfoliative dermatitis has been known to occur as a result of practically all types of medication; it is therefore to be expected that one should eventually encounter this dreaded reaction as a result of diethylstilbestrol therapy. Numerous toxic reactions to this drug have been reported. A number of these have been cutaneous.[1] Some have been severe and alarming.[2] However, in a careful search of the literature I have found no cases recorded of exfoliative dermatitis due to diethylstilbestrol. Because of the rarity and serious nature of this condition, I feel that this case is worthy of a report.

REPORT OF CASE

F. C., a woman aged 51, seen May 16, 1942, complained of hot flashes, nervousness and insomnia. These symptoms had become progressively worse for the past several years. The menses had been irregular for about three years and had ceased entirely six months before the patient was seen. The past history was without significance except for hypertension for several years. There was no personal or familial history of allergy. The patient was moderately obese and obviously very nervous. The blood pressure was 190 systolic and 100 diastolic, the temperature 98.6 F., the pulse rate 86 and the respiratory rate 18. There was moderate cardiac enlargement but no murmurs or arrhythmia. There were no cardiac symptoms and no other physical abnormalities. The Kahn reaction of the blood and urinalysis were negative. A diagnosis of menopausal syndrome was made, and she was given 0.5 mg. of diethylstilbestrol intramuscularly and phenobarbital ¼ grain (0.016 Gm.) four times a day.

She returned in one week greatly improved, especially as to the nervousness and insomnia, and phenobarbital was discontinued. She was given diethylstilbestrol 1 mg. intramuscularly. She did not mention any cutaneous reaction or other toxic symptoms at this visit, but later questioning revealed that shortly after her first visit a generalized pruritus had developed, but she had believed it to be a "heat rash" and did not consider it important. Her next visit was on May 30. She was again given 1 mg. of diethylstilbestrol intramuscularly. She again did not consider the "heat rash" important.

June 2 I was called to see her and found her acutely ill. The temperature was 104 F., the pulse rate 108, the respiratory rate 30 and the blood pressure 170 systolic and 90 diastolic. She was in intense pain from the generalized and severe pruritus, and there was a beginning generalized exfoliative dermatitis. The skin was hot to the touch, exfoliating and edematous —especially of the face and legs. There was generalized glandular enlargement. She was given boric acid, starch and soda baths and applications of calamine lotion and olive oil. Sodium thiosulfate was given by vein and by mouth; calcium gluconate was given by mouth, and large doses of vitamin B_1 were given hypodermically and by mouth. Codeine and phenobarbital were given to control pain and restlessness. Under this regimen she made a gradual recovery.

A patch test with diethylstilbestrol was negative in forty-eight hours. A scratch test gave a violent reaction with pseudopod formation, erythema, edema, pain and itching within twenty minutes. It was not thought safe or necessary to perform an intradermal test. All tests were given with the original undiluted diethylstilbestrol in sesame oil. Control tests with the pure oil gave negative results.

SUMMARY AND CONCLUSIONS

Diethylstilbestrol is an effective estrogenic medication, but it causes many toxic reactions. Some of these may be violent and dangerous. It is therefore well to question and examine all patients thoroughly before continuing therapy. In this case it is believed that, had the early eruption been noted and properly evaluated, therapy would have been stopped and the exfoliative dermatitis avoided.

I believe that I have established the etiologic relationship between the diethylstilbestrol medication and the exfoliative dermatitis because of the positive scratch test and the negative reaction to the pure oil. Further, this hitherto nonallergic patient had taken no other therapy which could have caused this condition, with the exception of phenobarbital, and this had been discontinued for more than a week before the exfoliation began. In addition, phenobarbital was given during the height of the reaction for sedation and did not aggravate the disease.

Dermon Building.

1. Greenblatt, R. B.; Torpin, R., and Brown, W. R.: Diethylstilbestrol: A Clinical Evaluation of the Various Modes of Administration, South. M. J. **33:** 1276 (Dec.) 1940. Mazer, Charles; Israel, S. L., and Ravetz, Elkin: The Synthetic Estrogen Stilbestrol, J. A. M. A. **116:** 675 (Feb. 22) 1941. Wimpfheimer, Seymour, and Portnoy, Louis: Treatment of the Menopause with Small Doses of Stilbestrol, New York State J. Med. **41:** 1554 (Aug. 1) 1941. McCullagh, E. P., and Jones, T. R.: Stilbestrol in Treatment of Ovarian Deficiency, Cleveland Clinic Quart. **8:** 2 (Jan.) 1941. Shorr, Ephraim; Robinson, F. H., and Papanicolaou, G. N.: Clinical Study of the Synthetic Estrogen Stilbestrol, J. A. M. A. **113:** 2312 (Dec. 23) 1939.

2. MacBryde, C. M.; Freedman, Harold, and Loeffel, Ellen: Studies on Stilbestrol, J. A. M. A. **113:** 2320 (Dec. 23) 1939. Loftis, E. L.: Purpura Due to Injection of Estrogenic Substance, Arch. Dermat. & Syph. **42:** 138 (July) 1940. Saphir, William, and Weinglass, A. R.: Severe Angioneurotic Edema Following Diethylstilbestrol Therapy, J. A. M. A. **119:** 557 (June 13) 1942.

AURAL INFESTATION WITH SCREW WORMS

FREDERICK MYLES TURNBULL, M.D., AND
L. BEN FRANKLIN, M.D., LOS ANGELES

The odor of decomposition is present in the discharges of many natural orifices, particularly if there is an accompanying suppuration. Stitt[1] points out that most flies instinctively deposit their eggs or larvae where there is the odor of decaying animal matter. A very common finding, especially in warm climates, is that of fly larvae in the auditory meatus when there is otitis media and in the nasal cavity when ozena exists. Sarcophagic flies are widely distributed throughout the world, and during war they are an important scourge, their larvae having been found in the wounds and body cavities of man.

On the American continent the fly Cochliomyia americana (syn. hominivorax) is common, and the larvae are rarely found in dead and decaying flesh feeding as saprophytes but are associated with wounds in living animals.[2] These flies are usually primary invaders and cause extensive destruction of

1. Stitt, E. R.: The Diagnostics and Treatment of Tropical Diseases, Philadelphia, P. Blakiston's Son & Co., 1929, p. 901.

2. Borgstrom, Floreine A.: Experimental Cochliomyia Americana Infestations with Special Reference to Bacterial Flora and Development of Immunity, Am. J. Trop. Med. **18:** 395 (July) 1938.

living tissue. When the larvae invade the skin [3] they produce festering, frequently deep, disfiguring wounds. Death has sometimes followed as a result of the lesions produced by these larvae, and Cushing and Patton [4] reported an 8 per cent mortality in 179 cases studied by them.

REPORT OF CASE

Mrs. F. D., a white woman aged 60, with chronic suppuration of the middle ear and mastoid, was walking across a grassy field at Bryce Canyon, Utah, about noontime on Aug. 21, 1941. An insect flew into her right ear and, so far as she could recall, remained there approximately two hours before she felt it leave, at which time the buzzing sound, which had been continuous, ceased.

About midnight of the same day she was awakened from sleep by resumption of the buzzing. At this time a watery, bloody discharge was emanating from the infected ear. The buzzing continued until 3 o'clock that afternoon, when one of us (L. B. F.) saw her at the Grand Canyon Lodge. On examination a white larva was observed in her ear. By irrigation four larvae were obtained, each about 3 mm. long, and the buzzing stopped.

Two hours later the buzzing started once more, and four more larvae were obtained. Later that evening nine more larvae were flushed out, together with some heavy granular pus. The external auditory canal was inspected and found to be clean.

During that same night and the following day (August 23) the ear was irrigated several times, and thirteen more larvae were obtained. These must have come from the mastoid cells, since the ear was clean after each irrigation.

At 5 o'clock on the morning of August 24 the buzzing sounds, which had been continuous, increased to a roar, and five more larvae were obtained after several irrigations. These larvae were now 1 cm. long and covered with setae, and blood could be seen inside them.

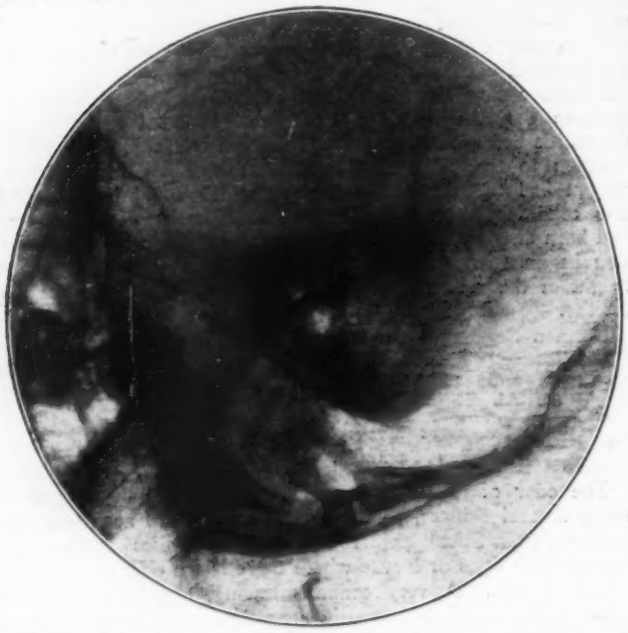

Fig. 1.—Appearance of mastoid after all the worms were removed. Note the bony destruction from chronic suppuration, also partly from action of larvae, which was accompanied by bloody discharge from the mastoid.

The patient then left for Los Angeles by train. En route, the stewardess irrigated the ear once and obtained one larva.

Early on the morning of August 25 the patient came to one of us (F. M. T.) for treatment. Chloroform fumes were used to anesthetize and kill the worms. This was accomplished by using the chloroform in the spray bottle under air pressure with a nozzle that fitted tightly into the external auditory canal. Three more larvae were thus obtained with irrigation, making a total of thirty-nine. To date, outside of possible bone destruction (fig. 1), the patient seems to have suffered no other ill effects from her experience.

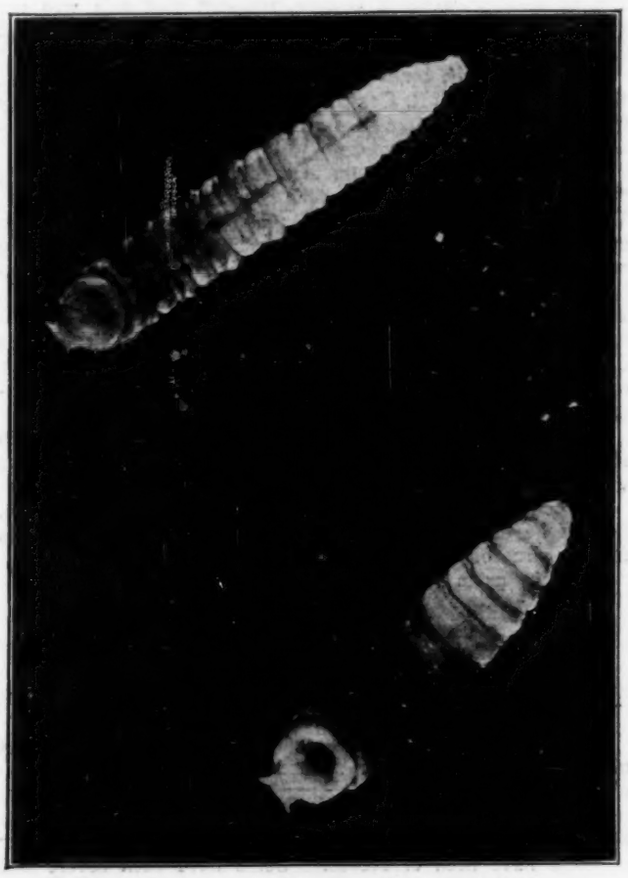

Fig. 2.—Mature larvae, obtained on the fourth day after infestation.

COMMENT

The larvae (figs. 2 and 3) obtained from the ear of Mrs. F. D. were identified by Dr. W. Dwight Pierce, entomologist, of the Los Angeles Museum of History, Science and Art, as primary screw worms of Cochliomyia Americana (syn. hominivorax).

Cochliomyia americana is a greenish blue calliphorine species, an obligatory parasite of warm blooded animals, breeding only in nature on living animals and capable of penetrating unbroken skin. Knipling and Rainwater [5] found this fly in 90 per cent of 901 myiasis producing wounds of man and animals in the middle, western and southern parts of the United States. The adults have a flight range of at least 9 miles and in a single summer may migrate as far as 1,500 miles north of the overwintering zone. The eggs are deposited in batches on injured or unbroken skin. The larvae hatch in from six to eight hours and feed ravenously on the liquid exudates of the wounds and penetrate by means of their powerful oral hoods. In the nasal or aural cavities the larvae may burrow into tissues, devouring in their passage mucous membrane, muscle, cartilage, periosteum and even bone. They may penetrate to the brain and cause death.[6] The mature larvae are usually about ⅔ inch long and have twelve rings of minute spines which make them resemble a

3. Craig, C. F., and Faust, E. C.: Clinical Parasitology, Philadelphia, Lea & Febiger, 1940, p. 613.

4. Cushing, E. C., and Patton, W. S.: Studies on Higher Diptera of Medical and Veterinary Importance; Cochliomyia Americana, Sp. Nov., Screw-Worm Fly of New World, Ann. Trop. Med. **27**: 539-551 (Dec.) 1933.

5. Knipling, E. F., and Rainwater, J. T.: Species and Incidence of Dipterous Larvae Concerned in Wound Myiasis, J. Parasitol. **23**: 451-455 (Oct.) 1937.

6. Manson-Bahr, P. H.: Manson's Tropical Diseases, ed. 11, Baltimore, Williams & Wilkins Company, 1940, p. 850.

screw. Borgstrom, in her experiments with this species, reported that eight larvae were the maximum which could be harbored in a guinea pig without resulting in the death of the animal.

Napoleon's famous surgeon, Dr. Larry, noted the beneficial effects of certain maggots, namely those of Lucilia sericata and Phormia (common blow flies). The healing effects of these larvae have been ascribed to their ingestion of necrotic tissue, to their predigestion of such tissue by the tryptase present in the excreta, which becomes active in the presence of calcium carbonate exuded through the body wall, and in the alkaline reaction caused by ammonia in the excreta. Robinson [7] demonstrated that the substance allantoin, which is a constituent of the urinary secretions of these maggots, stimulates healing in slowly suppurative wounds. It has been demonstrated that allantoin from other sources has this same stimulating action in the absence of maggots.

It is unfortunate, however, that the large majority of fly larvae that infest man and animals are capable of producing unpleasant, frequently serious and occasionally fatal results.

SUMMARY AND CONCLUSIONS

Cochliomyia americana (syn. hominivorax) is a fly common on the American continent. The larvae are frequently deposited in wounds on living animals and in man. The resultant lesions can produce frightful injury, and a mortality of 8 per cent has been reported. Although the fly is capable of penetrating unbroken skin, the odor of suppuration attracts oviposition.

Fig. 3.—A few of the larvae obtained at intervals from the patient's ear, showing various stages of maturity.

Patients with otitis media should be advised to keep cotton plugs in their ears while outdoors or around animals.

The larvae are readily killed by chloroform, and this should be used early in the form of vapor if possible or in fluid form if necessary.

1930 Wilshire Boulevard.

7. Robinson, William: Allantoin, Constituent of Maggot Excretions, Stimulates Healing of Chronic Discharging Wounds, J. Parasitol. **21:** 354-358 (Oct.) 1935.

Special Clinical Article

PROCUREMENT OF BLOOD FOR THE ARMED FORCES

CLINICAL LECTURE AT ATLANTIC CITY SESSION

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In May 1941 the American Red Cross and the Division of Medical Sciences of the National Research Council were asked by the Surgeon Generals of the Army and Navy to organize a cooperative project for the collection of human blood plasma for the armed forces. The Red Cross was to procure the donors, while the National Research Council was to assume general supervision of the professional services and to provide for competent professional personnel. The technical aspects of the program were designed to comply with the requirements of the National Institute of Health. Based on the experience obtained at a pilot bleeding center in New York City, established in February 1941, this project has now expanded from coast to coast, and blood donor centers are now operating in seventeen cities. I have previously reported [1] the experience of this pilot unit with its first 10,000 donors. The methods and technic of blood procurement outlined in that report are in general those now employed in all the centers.

This blood plasma project had experience with 320,442 donors as of May 1, 1942, as shown in the accompanying table. Except for mass vaccination and inoculation projects this is the largest controlled medical effort that has ever been undertaken in this country. As this work will include between two and three million more persons in the next twelve months, it was felt imperative that the methods of procedure employed and the results obtained be presented to the medical profession. The continued success of the project depends on the thorough understanding of the operation of the service by the physicians of the country.

Because of the widespread publicity that plasma and other blood substitutes have enjoyed there has been some confusion as to the organization and the manner in which these blood donor centers have been set up. In order to clarify this it should be noted that the American Red Cross Blood Donor Service is the sole agency for procurement of blood to be used by the armed forces.[2] Furthermore, the centers of this service are the only agencies in which blood is obtained for the preparation of dried plasma for the Office of Civilian Defense.

The seventeen centers now in operation were chosen, first, because of their relation to centers of population and, second, because of their proximity to the commercial biologic laboratories that could process the blood into dried plasma. These considerations are necessary, for under the standards of the National Institute of

From the Presbyterian Hospital.
Read in the General Scientific Meetings at the Ninety-Third Annual Session of the American Medical Association, Atlantic City, N. J., June 9, 1942.

1. Taylor, E. S.: Blood Procurement for the Army and Navy, J. A. M. A. **117:** 2123 (Dec. 20) 1941.

2. The American Red Cross in cooperation with the Army Medical Corps is opening several additional centers to procure liquid plasma for use solely in army general hospitals within continental United States.

Health the plasma must be carried to the frozen state within seventy-two hours after the blood has been withdrawn. Because of difficulties in transportation and refrigeration, it is not practicable to set up centers at great distances from the plants, particularly when sufficient blood can be obtained nearby. Seven processing plants are now in operation, and three others are being added to accommodate the request of the Army and Navy for the production of albumin[3] obtained from human plasma. Naturally such a plan of organization makes it impossible to include many communities in which the people generously wish to participate as blood donors.

It can easily be seen that, in a program of such magnitude, an assembly line type of production must be developed. This is necessary not only in order to produce in such large quantities but also because when dealing with as fragile a biologic product as plasma, standardization of operation is absolutely essential. If this vast army of donors is to be adequately protected, all details of technic and equipment must be uniform and made use of in a standardized manner. From an organizational point of view the bleeding is done by a team that consists of one doctor, a secretary, four nurses and one or two shipping clerks. The basis of operation of such a team is a unit consisting of two beds and a work table under the supervision of one nurse. A trained team can easily handle 100 donors in from four to five hours. These compact teams have enabled widespread extension of the work without the addition of a large number of physicians. About forty doctors, many of them women, are now bleeding over 20,000 donors per week. Although volunteers are used to assist in the work of each bleeding team, they are in no way concerned with the medical appraisal of the donor or the actual venesection. In evolving the technic and manner of procedure in handling this large group of donors, every effort has been made to speed up efficient procedure. Each step has been made only after it has been fully determined whether, first, it incurs any risk to the donor and, second, whether it will in any way damage or impair the final product.

Blood Plasma Collections to May 1

Center No.	Donors	Rejections	Failures	Bleedings	Reactions	Months in Operation
1	19,810	2,697	136*	16,977	484	11
2	19,648	629	242	18,777	180	6
3	5,288	707	141	4,440	108	2
4	20,874	2,505	275	18,094	165	10
5	14,870	1,981	97	12,792	246	4
6	8,348	611	235	7,502	701	3
7	14,155	1,567	308	12,280	1,019	4
8	29,800	2,240	1,007	26,553	892	6
9	18,106	1,614	737	15,755	925	7
10	6,457	349	289	5,819	167	4
11	12,872	528	381	11,963	154	4
12	53,736	4,648	875	48,213	1,671	15
13	30,954	2,577	810	27,567	1,264	13
14	12,456	237	140	12,079	262	6
15	24,970	2,785	877	21,308	877	10
16	8,551	507	371	7,673	102	4
17	19,547	693	449	18,405	1,131	5
Totals	320,442	26,875 (8.3%)	7,370 (2.5%)	286,197†	10,348 (3.5%)	
Ratio Males to Females	1:1.14	1:1.93	1:3.18		1:1.25	

* A number of failures are included under rejections.

† Six thousand two hundred and twenty-three bleedings were diverted to serum and albumin projects, leaving 279,974 to be used for plasma.

3. Cohn, Edwin: National Research Council Bulletins, Division of Medical Science, Subcommittee on Blood Substitutes.

PROCUREMENT

In order that the assembly line of production may be a smooth one it is necessary that a steady, even flow of donors be maintained. If a bleeding team is deluged with a number of donors beyond its capacity, proper care cannot be exercised in attending these donors. Similarly, if the capacity of the processing plant is exceeded, much of the blood may be wasted in the processing.

As the tempo of the war effort has stepped up, not the least difficult part of the program has been to control the enthusiasm of individuals and groups that wish to donate their blood. In this respect the mobile unit has been of inestimable value (fig. 1). It is used by sixteen of the seventeen centers and is at present the source of supply of 35 per cent of all the blood obtained. Through its use, small communities can be included in the program as autonomous groups. Factory workers can contribute without undue loss of time. Political, fraternal, union and neighborhood groups can make donations as units. From the point of view of civilian defense it should be noted that the bleedings taken each day at every center are available to that community in the event of a catastrophe caused by sabotage or other enemy action. Furthermore, the bleeding teams are on twenty-four hour call for emergencies and, as a mobile unit, can set up for operation in any locale within 75 miles of the blood donor center.

THE PROTECTION OF THE DONOR

From the outset of the program the protection afforded the donor has been of primary consideration. The minimum donor requirements have been set forth in a previous communication.[1] No extensive physical examination is given, but instead a series of ten questions is asked. Temperature, hemoglobin, blood pressure and pulse determinations are made, and on a basis of these findings and the history the physician decides whether or not the applicant is a suitable donor:

1. Age: Donors 21 to 60 years of age inclusive are accepted.
2. Sex: Both male and female donors are taken.
3. Race: Members of all races are accepted.
4. Temperature: A donor is not acceptable if the temperature by mouth exceeds 99.5 F.
5. Hemoglobin: A donor is not acceptable unless the hemoglobin level is 80 per cent or above.
6. Blood Pressure: A donor is not acceptable unless the systolic blood pressure is between 100 and 200 mm. of mercury.
7. Pulse: The pulse is to be recorded. Particular note is made of irregularity as well as decided bradycardia or tachycardia.
8. History: The donor is asked the following questions:
    1. When did you last donate blood? (At least eight weeks must elapse between donations.)
    2. Have you had any illness in the last month?
    3. Have you ever had malaria? tuberculosis?
    4. Did you ever have shortness of breath?
    5. Have you had swelling of the feet?
    6. Have you had a persistent cough?

7. Have you pain in the chest?
8. Have you coughed up blood recently?
9. Do you have fainting spells?
10. Do you ever have convulsions?

9. Persons with diabetes are accepted only on written permission of their physician.

10. No donors are accepted who are pregnant or who have delivered within the past nine months.

Proof of the efficiency of the method of selection of donors needs no further comment than the fact that 286,197 donors have been bled without a single fatality or serious accident. This is far below the expected accident death rate in the population as a whole and can only mean that a highly selected group have been carefully handled both during and after venesection. Of the 320,442 persons who have offered to donate, 26,875, or 8.3 per cent, have been rejected as not meeting the donor requirements. More prospective female donors are refused than male, the ratio being 1 : 1.93.

Accidents that can conceivably occur to the donor fall roughly into five main categories:

1. Cardiovascular disturbances: Two subjects with known heart disease were hospitalized for mild decompensation. Neither had admitted having heart disease on questioning before donating. A 54 year old male donor with no previous cardiac history had a coronary occlusion within the first twenty-four hours after donating. He was hospitalized and made a full recovery.

2. Infection about the site of the venipuncture: Only five infected arms have been noted. All infections were localized and responded rapidly to therapy. One donor was said to have developed transient staphylococcic septicemia forty-eight hours after being bled. He recovered after being hospitalized for five days.

3. Lacerations, contusions and so on associated with syncope: There have been fourteen head and scalp lacerations in donors who fell in syncope. One donor chipped a front tooth. A young man refusing to rest the prescribed length of time received a minor fracture of the clavicle when he fainted and fell against the bleeding couch. An elderly man was hospitalized for observation for possible concussion for forty-eight hours.

4. Burns, dermatitis and allergic reactions resulting from materials used in cleansing the arm: There have been no iodine burns. There have been 5 cases of dermatitis about the site of the venipuncture.

5. Miscellaneous: A few female donors have complained of delayed menses. Five cases of hysteria have required observation up to eight hours. Some donors have complained of weakness and lassitude for from two to eight days. All rumored reports of profound anemia and prostration developing in donors have been found groundless on investigation.

It can be seen then that the majority of complications of blood donations result from syncope. Rather uniformly throughout the country approximately 3.5 per cent of the donors show some type of reaction that requires them to rest longer than the prescribed period of ten minutes. About half of these show definite syncope with momentary loss of consciousness. In the latter group there has been observed a small number who show a syndrome in which loss of consciousness is accompanied by generalized convulsions, incontinence, cyanosis and in a very few cases rather striking tetany with carpopedal spasm.[4] Donors with this syndrome when seen for the first time were most disturbing, but all rapidly responded to symptomatic treatment. Appropriate steps have been taken to provide for a more thorough study of these subjects. All the teams, whether at the center or on a mobile trip, have with them equipment to administer intravenous saline solution and drugs for sedation and stimulation. Considerable attention [5] has been paid to this question of syncope and its prevention.[6] The young adult of asthenic habitus who weighs but 100 to 110 pounds (45 to 50 Kg.) is the most susceptible. If he has hypotension he is almost sure to have some reaction. One must also be on the lookout for the donor who has just worked a long shift at a factory, particularly during the warm weather, when dehydration may be an added factor in predisposing to syncope.

At the beginning of the project it was felt necessary to keep each donor in a separate cubicle and out of sight of the other donors because of the importance of the psychogenic factors involved in syncope. Most of the centers have now adopted the open common bleeding room, where all the donors are in full view of each other (fig. 2). In this way the physician in charge can keep a close check on all of the donors in the room and be on the alert for any signs of impending reaction. It is important from a psychologic point of view that an unhurried, cheerful air pervade the bleeding room. Many a donor has been "talked out" of having a reaction.

Fig. 1.—A mobile unit in operation in an office building. All the equipment necessary, including refrigerator and beds, is transported in a 1 ton standard truck.

A serologic test is done on each donor who is bled. This places on the physician in charge of each center a public health responsibility. Because of the confidential nature of the information at no time should the results of the serologic tests or the medical record

4. Frazer, W. F. and Fowweather, F. S.: Tetany in Blood Donors, Brit. M. J. 1: 759 (June 20) 1942.

5. Greenberg, C. L.: An Analysis of the Incidence of "Fainting" in 5,897 Unselected Blood Donors, Brit. M. J. 1: 253 (Feb. 21) 1942.

6. Brown, Helen, and McCormack, Patrick: An Analysis of Vasomotor Phenomena (Faints) Occurring in Blood Donors, Brit. M. J. 1: 1 (Jan. 3) 1942.

card be accessible to any one but the professional staff. All bloods giving positive and questionably positive reactions are double checked before they are reported as "unsatisfactory." The word syphilis is never used in any communication between processing plant, physician and donor. Each donor with a positive serologic reaction is carefully followed according to the state public health laws. There have only been 1,667 reports of positive reactions to date, or 0.595 per cent of the total number of bleedings obtained.

Donors are permitted to return for a second donation after eight weeks have elapsed but are not allowed to give more than five donations in a year. This spacing of donations is in accordance with the work of Fowler and Barer,[7] who found that at times 25 per cent of donors have not regenerated their hemoglobin completely at the end of eight weeks and suggest that hemoglobin determinations be made if a second bleeding is to be done at that time. Twelve per cent of the donors who were rejected had substandard hemoglobin levels.

Fig. 2.—The type of large room that has been found to be most suitable in bleeding masses of donors.

A carefully controlled study of 100 male professional donors of the Blood Transfusion Association [8] in New York over a number of years throws some interesting light on this question of redonations. These 100 donors gave 3,617 transfusions averaging 525 cc. of blood over a period of four to fourteen years. The average duration of observation is seven years. These donors gave from 16 to 101 times during the time studied, or an average of 36 times per donor. They were required to rest one week between transfusions for every 100 cc. of blood given. They had hemoglobin determinations made each month they gave blood and had a routine hemoglobin check-up every three months if they had not given blood.

None of these donors showed a significant failure to regenerate their hemoglobin at the end of this rest interval, and over a period of years little variation has been noted from the original hemoglobin reading. It is felt that this long term study adds further to the evidence that there is no deleterious effect on healthy individuals who make repeated blood donations at stated intervals.

There is one other factor that has a direct bearing on the donor but perhaps has a more legal than medical implication. The American Red Cross has undertaken to have typed the blood of each donor and to report the type to him according to the international classification. Not only is this of personal interest to the donor but potentially it offers factories, unions and small communities a basis for a "walking blood bank." Every effort has been made to make this typing accurate and of high standard. However, with such a great volume of bloods to be typed occasional discrepancies do appear. The Red Cross has felt that it is necessary to note on the certificate stating the patient's type that the typing given to him should be used only as a tentative classification if the holder should be called on to give or receive a transfusion. It is hoped that with this proviso included these certificates will prove of value to the individual and the community and still not be a dangerous implement in the event that there has been a discrepancy in the typing.

PROTECTION OF BLOOD OBTAINED

The equipment used throughout the project is similar to that originally described as being employed at the pilot unit. The standard bottle is of 550 cc. capacity, contains 50 cc. of 4 per cent citrate solution and is an entirely "closed" system. The original stopper has been improved so that it has an overhanging lip or hood which lessens the likelihood of the bottle becoming uncorked. A simple new clamp has been devised which more efficiently seals off the rubber tubing at the completion of bleeding. This bleeding set has been shown by experience to be simple to clean and to assemble. It has a minimum of replaceable parts—practically nothing but the rubber tubing. The bottle itself has proved to be of very high quality, as is shown by the fact that only 126 bottles have been broken in shipment and but 842 cracked in centrifugation, an overall breakage loss of but 0.345 per cent. Several other types of bottles are purported to have been used in collecting blood for the armed forces. The pictured set (fig. 3) is the only bleeding set that has been employed in this project. A second type of bottle was employed for a short time but was found to be unsatisfactory for many reasons, and its use had to be discontinued. This statement is in no sense to be construed to mean that the set in use is the only type of equipment suitable to take blood. It is felt, however, that this set is peculiarly adapted for this type of mass bleeding wherein large numbers of people must be efficiently handled with a small personnel and particularly when due attention must be given to the cost of handling and repossessing the set.

As this country is in a state of war, the possibility of sabotage must be borne in mind. Every effort has been made to protect the sterilized sets before use and the bottles of blood in transportation back to the processing laboratories.

It has been shown in this project that without any question large quantities of fresh bood can be trans-

7. Fowler, W. M., and Barer, Adelaide P.: Rate of Hemoglobin Regeneration in Blood Donors, J. A. M. A. **118**: 421 (Feb. 7) 1942.
8. Katzen, E. M.: Personal communication to the author.

ported considerable distances without appreciable loss. Several of the bleeding centers ship by railway express nearly 500 miles every day. It must be emphasized that these remarks have to do with freshly drawn blood that is properly refrigerated. It has been proved that proper refrigeration over both short and long hauls is one of the most important factors in limiting the loss from hemolysis and bacterial contamination. Losses from hemolysis have been small: but 0.569 per cent, or 1,591 units. All but 406 of these were lost as the result of freezing when inadequate shipping arrangements allowed the blood to be exposed for a considerable period of time to subzero weather. So-called Church containers with built-in racks have been used to transport the blood by express. Their very cumbersomeness has prevented unduly rough handling. When adequately precooled they have served admirably in maintaining low temperature ranges during the warm weather. Although mechanically controlled refrigeration would be ideal, the complexness and expense of such equipment is prohibitive.

Miscellaneous losses total 794 bleeding units, or 0.284 per cent. For the most part these losses were unpreventable. For example, a pool that contained blood from a donor who developed typhus had to be withdrawn. On several occasions weather conditions caused the blood to be held too long in shipment. Actually but little of this blood was discarded, as the plasma obtained from it was used in pilot bottles for testing moisture content, and the like, thereby conserving usable material which normally would have been used for such tests.

The maintenance of sterility is the greatest problem that has to be faced in a plasma program. The problem of bacterial contamination is not sufficiently emphasized in much of the current scientific and commercial literature. In order to maintain a low rate of contamination there cannot be the slightest break in technic or in the handling of the blood from the time the bleeding set is originally sterilized until the final dispensing unit is dried. It has been clearly shown that absolute standardization in the preparation of the sets, venesection, refrigeration and transportation of the blood must be adhered to and that the personnel both at the bleeding centers and at the processing plants must be highly trained and subject to a minimum of turnover. Losses from bacterial contamination to date total 6,260, or 2.26 per cent. As this figure includes all losses from the beginning of the project, during which period sixteen new centers and four new processing laboratories have been broken in, it is felt that losses in the next six months of operation will be less than half this amount. The figures that have been obtained for the last two months indicate that this improvement is already being realized.

Although not a technical consideration, the record keeping in the project is of prime importance. No one person is more of an intimate cog in this program than the secretary of each bleeding team, for it is on the proper serial numbering of the medical record, bleeding bottle and serologic tube that all subsequent handling of the blood is dependent. In order to reduce the human error as much as possible, the manner of maintaining such records has been worked out so that there is as little transcription as possible. The medicolegal importance of accuracy in this respect is obvious.

In order to ascertain the number of persons necessary to be recruited for each thousand units of dried plasma required for the Army and Navy, it is necessary to review the losses incurred from all reasons. Eighty-three people in every thousand are rejected because they do not meet the donor requirements. Another 25 are unable to be bled because of technical difficulties. The over-all loss, preventable and otherwise, occurring in the processing plants add another 40 per thousand. Since it takes something more than one bleeding to provide plasma for the final dispensing unit, which contains 300 cc. of plasma citrate mixture, it was found on the average that 1,100 usable bleedings are necessary to fill 1,000 final containers. Thus, when all the losses are added up it seems that in order to provide 1,000 packages of dried plasma for the Armed Forces 1,248 persons must offer to donate their blood.

This report of the bleeding centers and the processing laboratories does not represent the performance of 1 or 2 individuals or organizations but is a result of the coordination of every person concerned with each step in procedure from the time the donor enters the bleeding

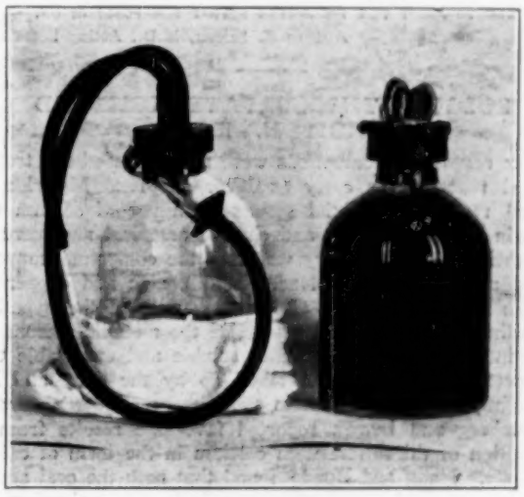

Fig. 3.—The standard bleeding set before and after use.

center until the finished package is turned over to the Army and Navy. It has only been through the loyal cooperation of physicians, secretaries, nurses, volunteer aides, expressmen and technical staffs at the various processing plants that this, the largest production of human biologic material in a single project the world has known, has been attained.

SUMMARY

1. The American Red Cross Blood Donor Service acting in cooperation with the National Research Council is engaged in the largest controlled medical project ever undertaken in this country. It has already dealt with 320,442 persons offering to donate their blood to be processed into dried plasma.

2. There have been 286,197 donors bled without a single fatality or serious accident. The necessity of standard equipment, technic and personnel is essential for efficient production and to protect the health of the donor as well as the quality of the product produced.

3. Taking into consideration losses from all sources, it has been found that in order to provide 1,000 finished units of dried plasma for the armed forces 1,248 persons must offer to give their blood.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

FOR SOME TIME THE COUNCIL HAS QUESTIONED THE USEFULNESS OF SODIUM THIOSULFATE. NO STATEMENT OF ACTIONS AND USES IS INCLUDED IN NEW AND NONOFFICIAL REMEDIES, SINCE THE PRODUCT IS A PHARMACOPEIAL ONE. THE PREPARATIONS OF THE FOLLOWING FIRMS STAND ACCEPTED: ABBOTT LABORATORIES, THE EMERGENCY ANTIDOTE KIT COMPANY, ENDO PRODUCTS, INC., FLINT, EATON & CO., THE MALTBIE CHEMICAL COMPANY, THE WM. S. MERRELL COMPANY AND G. D. SEARLE & CO., INC. THE DRUG HAS BEEN ACCEPTED FOR NEW AND NONOFFICIAL REMEDIES AND USEFUL DRUGS MAINLY ON THE GROUNDS OF ITS REPUTED USEFULNESS IN THE TREATMENT OF ARSENICAL AND OTHER HEAVY METAL INTOXICATION. AT THE LAST MEETING OF THE COUNCIL IT WAS DECIDED THAT A REPORT ON THE PRESENT DAY USE OF THE DRUG IN DERMATOLOGIC AND SYPHILOLOGIC PRACTICE BE PREPARED. AS A RESULT OF THE SUBSEQUENT REPORT, WHICH WAS ADOPTED, THE COUNCIL VOTED TO OMIT ALL ACCEPTED PREPARATIONS OF SODIUM THIOSULFATE FROM NEW AND NONOFFICIAL REMEDIES AND TO REVISE THE USEFUL DRUGS STATEMENT OF ACTIONS AND USES TO DELETE RECOMMENDATIONS FOR USE IN MERCURIAL AND OTHER FORMS OF HEAVY METAL POISONING AND FURTHER TO DISPARAGE ITS USE IN ARSENICAL INTOXICATION. THE VARIOUS FIRMS CONCERNED WERE INFORMED OF THE COUNCIL'S ACTION AND ASKED IF THEY COULD PRESENT EVIDENCE TO JUSTIFY CONTINUED INCLUSION OF SODIUM THIOSULFATE DOSAGES IN NEW AND NONOFFICIAL REMEDIES. NONE OF THE FIRMS PRESENTED SUCH DATA. THE COUNCIL FINALLY VOTED TO OMIT THE ACCEPTED PREPARATIONS OF SODIUM THIOSULFATE FROM NEW AND NONOFFICIAL REMEDIES, TO REVISE THE USEFUL DRUGS STATEMENT OF ACTIONS AND USES AS STATED, AND TO ADOPT THE FOLLOWING REPORT FOR PUBLICATION.

AUSTIN E. SMITH, M.D., Acting Secretary.

SODIUM THIOSULFATE OMITTED FROM N. N. R.

Sulfur containing compounds were recommended for treating arsenical reactions as early as 1916. In 1923 McBride and Dennie[1] reported beneficial results from use of sodium thiosulfate in 7 cases of acute and chronic arsenical and mercurial complications. Their theory was that the compound converted salts of arsenic, mercury, lead, bismuth, zinc and copper into nontoxic insoluble sulfides. Later they adopted the hypothesis that sodium thiosulfate will neutralize the metallic poisons free in the intestinal tract and render soluble and excretable those substances which have been taken up by the body and have been tightly bound by a protein radical.

Schamberg and Brown reported favorable results from the combination of thiosulfate with calcium in the form of calcium thiosulfate. Haag and Bond[2] found that both the oral and the intravenous use of the drug was valueless in poisoning produced by solution of potassium arsenite, even though the supposed antidote was injected intravenously much more promptly than would be the case clinically. Stokes as long ago as 1934 was less convinced of the value of the drug in arsenical intoxication and stated that there might be actual damage if its use was continued after the first few days of an arsphenamine dermatitis. Moreover, Moore,[3] in the recent edition of his work, says on page 109 "Sodium thiosulfate is of no value in the treatment of arsenical dermatitis" and again on page 122 "Sodium thiosulfate is, so far as we can see, of no value at all" in the treatment of arsenical jaundice or in any type of arsenical or mercury intoxication. Haskell, Henderson and Hamilton,[4] working with dogs poisoned by mercury bichloride, found sodium thiosulfate of no value as an antidote for the mercury that had gained entrance into the circulation.

Young and Taylor[5] reported that sodium thiosulfate in large and repeated doses did not decrease the toxicity of mercury bichloride, of mercuric succinimide or of mercuric salicylate in rabbits. Nor did it decrease the tissue injury produced by the compounds studied.

Rosenthal[6] reported that sodium thiosulfate protected rat testes against the action of mercury only if added before the mercury. There was protection of the liver if the sodium thiosulfate was added either before or immediately after the mercury. No protection of the kidney was observed in any case. Injected intravenously into rats, sodium thiosulfate did not protect against a subsequent injection of mercury.

Oppenheim and Fantl[7] found sodium thiosulfate of no value in mice poisoned with arsenic trioxide. Animals receiving lethal doses of neoarsphenamine were not benefited by it.

INFLUENCE OF SODIUM THIOSULFATE ON THE TRYPANOCIDAL AND SPIROCHETICIDAL ACTIVITY OF ARSENICALS

Harrison[8] quotes Dale's statement that "so far as our experimental trials have proceeded there is no indication that dissolving the neoarsphenamine preparation before injection in a 2.5 per cent solution of sodium thiosulfate has any deleterious effect on the therapeutic action of the particular preparation on trypanosomiasis in mice." Voegtlin and Dyer[9] reported that large doses of sodium thiosulfate did not decrease the trypanocidal efficiency of arsphenamine, neoarsphenamine or sulfarsphenamine and did not decrease the spirocheticidal action of sulfarsphenamine. The senior author[10] had already shown that the compound has a very low toxicity. Myers, Groehl and Metz[11] had also found the same to be true in the therapeutic action of arsphenamine on Trypanosoma equiperdum.

INFLUENCE OF SODIUM THIOSULFATE ON THE EXCRETION OF ARSENIC

Myers, Groehl and Metz[11] and Myers, Marples, Groehl and Throne[12] observed that patients with arsphenamine dermatitis or jaundice under the influence of sodium thiosulfate excrete a large amount of arsenic in the urine, which they attributed in part to the removal of the stored arsenic from the body. On the other hand, Mattice, Baxt and Byrne[13] found no evidence that sodium thiosulfate injected intravenously mobilized arsenic from body stores for urinary elimination. In fact, when an arsenical and thiosulfate are injected within an hour of each other, in the order stated, they found the urinary excretion of the arsenic to be decidedly suppressed. Kuhn and Loevenhart[14] found that sodium thiosulfate does not mobilize the arsenic in the body but seems to cause its transformation into a less toxic, less therapeutically efficient and less easily excretable product. Oppenheim and Fantl[7] also found no increase in urinary excretion of arsenic after use of sodium thiosulfate in a variety of dermatoses where solution of potassium arsenite, neoarsphenamine and asiatic pills had been administered. In fact they call attention to the variation in arsenic excretion. This variation was also noted by Kuhn and Reese.[15] The administration of the thiosulfate resulted sometimes in increases and sometimes in decreases. Pronounced increases were of short duration and could not be maintained by subsequent doses of sodium thiosulfate. Peaks in rate of excretion were always several days apart, even with daily doses of the thiosulfate. Their clinical observations of the value of thiosulfate were not con-

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2. Haag, H. B., and Bond, W. R.: Value of Sodium Thiosulphate in Poisoning from Oral Administration of Arsenic, J. A. M. A. **88:** 1219 (April 16) 1927.
3. Moore, J. E., and others: The Modern Treatment of Syphilis, ed. 2, Springfield, Ill., Charles C. Thomas, Publisher, 1941.
4. Haskell, C. C.; Henderson, W. C., and Hamilton, J. R.: Sodium Thiosulfate in Mercurial Poisoning, J. A. M. A. **85:** 1808 (Dec. 5) 1925.
5. Young, A. G., and Taylor, F. L., assisted by Eleanor R. Shea: Effect of Sodium Thiosulfate on Mercury Poisoning, J. Pharmacol. & Exper. Therap. **42:** 185, 1931.
6. Rosenthal, S. M.: Experimental Studies on Acute Mercurial Poisoning, Pub. Health Rep. **48:** 1543, 1933.
7. Oppenheim, M., and Fantl, P.: Das Natrium thiosulfat in der Behandlung von durch Arsenbindungen verursachten Hauterkrankungen, Arch. f. Dermat. u. Syph. **175:** 438, 1937.
8. Harrison, L. W.: Effect of Sodium Thiosulfate on the Therapeutic Power of Arsphenamine Compounds, Lancet **1:** 1161 (May 30) 1925.
9. Voegtlin, Carl; Dyer, H. A., and Leonard, C. S.: On the Specificity of the So-Called Arsenic Receptor in the Higher Animals, J. Pharmacol. & Exper. Therap. **25:** 297, 1925.
10. Voegtlin, Carl, and Dyer, H. A.: Arsphenamine-Sodium Thiosulfate Treatment of Experimental Syphilis, Pub. Health Rep. **42:** 1045 (April 15) 1927. Voegtlin, Dyer and Leonard.[9]
11. Myers, C. N.; Groehl, M. R., and Metz, G. P.: Therapeutic Activity of Sodium Thiosulfate, Proc. Soc. Exper. Biol. & Med. **23:** 97-101, 1925-1926.
12. Myers, C. N.; Marples, E.; Groehl, M. R., and Throne, B.: The Use of Sodium Thiosulfate in Diagnostic Procedures, J. Lab. & Clin. Med. **11:** 836, 1926.
13. Mattice, Marjorie R.;; Baxt, Herman, and Byrne, John M.: Effect of Thiosulfate on Arsenic Excretion, Arch. Dermat. & Syph. **42:** 399-404 (Sept.) 1939.
14. Kuhn, H., and Loevenhart, A. S.: The Antagonism Between Sodium Thiosulfate and Arsenical Compounds, J. Pharmacol. & Exper. Therap. **25:** 160, 1925.
15. Kuhn, H. A., and Reese, H. H.: Sodium Thiosulfate in Treatment of Metallic Intoxication, J. A. M. A. **85:** 1804 (Dec. 5) 1925.

vincing. Of course, Mattice and Weisman[16] have already pointed out that arsenic excretion studies are valueless unless the diet is known.

ACTION OF SODIUM THIOSULFATE

Muir, Stenhouse and Becker[17] think the therapeutic effects of the drug can be placed first under its action as a reducing agent, as suggested by Ravaut. Second, Curtis and Young,[18] in their studies on the effect of sodium thiosulfate on the excretion of lead, decided that any slight effect was due to its alkaline reaction and not to any ability to form soluble or insoluble lead compounds. Shaffer[19] also thinks that it has a tendency to produce an alkalosis, particularly if it is used indefinitely. Curtis and Young also questioned the conclusion of Frazier[20] in 2 cases in which an acute purpuric vesiculobullous dermatitis accompanied by fever had appeared following the use of an aqueous solution of sodium thiosulfate in the treatment of arsenical dermatitis. One of the patients also developed bronchopneumonia with pleural effusion and acute hemorrhagic nephritis. These investigators point out that sodium thiosulfate in an aqueous solution is a rather unstable compound and that heating it for forty-five minutes at 45 pounds steam pressure may have caused decomposition. They also point out that sodium thiosulfate ($Na_2S_2O_3$) is also known as sodium hyposulfite but that the American Chemical Society reserves this name for a more toxic compound, $Na_2S_2O_4$. Frazier incidentally had observed favorable results from the use of sodium thiosulfate in 3 further cases of arsphenamine dermatitis. Myers and his co-workers[12] think that it causes a stimulation of diuresis. Baba[21] found that it had no neutralizing effect against arsphenamine but that it had a diuretic action.

There is difference of opinion as to whether sodium thiosulfate forms less toxic metallic sulfides. This was the opinion of McBride and Dennie. However, Hesse[22] points out that the possibility of curing a metallic poisoning by way of the sulfide is limited because of the difference in toxicity of different metallic sulfides. No common rule will cover all of them. Each one must be tried out by itself. Hesse did find that various sulfur compounds were of no value in parenteral arsenic poisoning. Moreover, Lehner[23] has shown that sodium thiosulfate solution dissolves in neoarsphenamine solution without any precipitate.

Oppenheim and Fantl[7] think that the value of thiosulfate is due to its activating effect on protoplasm through splitting off of sulfur in the organism.

The referee submits the following summary of a careful review and of experimental work done by Muir, Stenhouse and Becker[17] on "The Action of Sulfur Containing Compounds in Arsenical and Mercurial Poisoning."

The literature is reviewed relative to the clinical and experimental evidence for the value and action of sodium thiosulfate and other sulfur bearing compounds and sodium formaldehyde sulfoxylate in poisoning by various metallic salts, especially arsenic and mercury.

Studies carried out on 123 rabbits poisoned with inorganic and organic arsenicals and mercury failed to show any protective action of sodium thiosulfate and of sodium p-sulfhydril phenyl sulfonate, as used in various ways. Microscopic examination of the kidneys of animals poisoned by sodium arsenate showed the same degree of degeneration regardless of whether sodium thiosulfate or sodium p-sulfhydril phenyl sulfonate had been given.

Analysis of the possible modes of action of sodium thiosulfate —reduction, alkalization, diuresis, formation of less toxic metallic sulfides, rendering metallic salts soluble and excretable and intravital formation of sulfur—suggests the probable action of intravital formation of sulfur, a substance which has long been used in the treatment of metallic intoxication.

Theoretically, sodium p-sulfhydril phenyl sulfonate should have a more definite action on arsenicals because of its sulfhydril group, but this was not demonstrated in the experiments performed.

Sodium formaldehyde sulfoxylate protected rabbits poisoned with mercury bichloride only when given before the latter and not when given afterward. It had no protective action against poisoning by inorganic and organic arsenicals, regardless of whether it was given before or afterward.

Sodium formaldehyde sulfoxylate acts by reducing mercury bichloride to metallic mercury, which is considerably less toxic. It protects only by the intravenous route. When the mercurial salt is given by mouth, the protective drug must be administered only a few minutes thereafter. If the latter is given orally for mercurial poisoning by ingestion, it should be given with sodium bicarbonate to counteract the effect of the gastric acid, which delays reduction of mercury salts.

CONCLUSIONS AND RECOMMENDATIONS

It is quite apparent from experimental evidence at least that sodium thiosulfate is of no value in the treatment of arsenical and other heavy metal intoxication. Even its use in the early stages of arsenical intoxication is very questionable. While it is true that the literature is replete with case reports of various arsenical intoxications, particularly dermatoses, in which the drug seemed to be of some worth, yet it must be remembered that certain of these cases would have responded to simple rest in bed and hygienic provisions. It is quite difficult to control such clinical material.

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17. Muir, Kathleen B.; Stenhouse, Evangeline, and Becker, S. William: Action of Sulfur-Containing Compounds in Arsenical and Mercurial Poisoning, Arch. Dermat. & Syph. **41**: 308 (Feb.) 1940.
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19. Shaffer, L. W.: Treatment of Postarsphenamine Dermatitis, Arch. Dermat. & Syph. **29**: 173 (Feb.) 1934.
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22. Hesse, E.: Die Entgiftungsmöglichkeiten der Metalle Co, Ag, HSb and As, Arch. f. exper. Path. u. Pharmakol. **122**: 354, 1927.
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NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Acting Secretary.

DIETHYLSTILBESTROL (See THE JOURNAL, June 20, 1942, p. 632).

The following dosage forms have been accepted:

LAKESIDE LABORATORIES, INC., MILWAUKEE.

Ampules of Diethylstilbestrol in Oil, 0.1 mg. per cc.: 1 cc. In sesame oil containing 0.5 per cent chlorobutanol.

Ampules of Diethylstilbestrol in Oil, 0.5 mg. per cc.: 1 cc. In sesame oil containing 0.5 per cent chlorobutanol.

WINTHROP CHEMICAL COMPANY, INC., NEW YORK.

Tablets Diethylstilbestrol: 0.1 mg., 0.5 mg., 1 mg. and 5 mg.

Suppositories Diethylstilbestrol: 0.1 mg. and 0.5 mg.

Ampuls Diethylstilbestrol (in oil), 0.5 mg. per cc.: 1 cc. In sesame oil.

Ampuls Diethylstilbestrol (in oil), 1 mg. per cc.: 1 cc. In sesame oil.

OXYGEN-CARBON DIOXIDE MIXTURE (See New and Nonofficial Remedies, 1941, p. 380).

The following dosage forms have been accepted:

OHIO CHEMICAL & MFG. CO., CLEVELAND.

Oxygen-Carbon Dioxide Mixture: oxygen 90%, carbon dioxide 10%.

Oxygen-Carbon Dioxide Mixture: oxygen 93%, carbon dioxide 7%.

Oxygen-Carbon Dioxide Mixture: oxygen 95%, carbon dioxide 5%.

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SATURDAY, SEPTEMBER 12, 1942

THE BIOLOGIC VALUE OF WHEAT PROTEINS

The war has focused attention on food, particularly such basic foods as wheat. Much has been said about the vitamin of wheat but relatively little of its protein content. Yet protein is just as necessary for life as vitamins perhaps and even more so because more of it is required to maintain health and efficiency. A thorough and conclusive study of the biologic value of the proteins contained in wheat flours is not only timely but of great importance in meeting the war time needs. Such an investigation has been recently reported by Harriette Chick [1] from the Division of Nutrition of the Lister Institute. The results of this investigation show much less variation and the results are much more conclusive than those of previous studies. Moreover, in no other experiments were all studies made on different flours derived from the same sample of wheat.

Dr. Chick has studied three wheat flours, each prepared from the same sample of grain. The method of study was as follows: Growth of young litter-mate rats, shortly after weaning, was compared on a diet whose sole protein content was derived from the wheat flour to be investigated. The rest of the diet was adequate in vitamins, minerals and fats. The three flours represented varying degrees of extraction of the whole meal, the first of which contained all of the grain and therefore was called 100 per cent. The second sample was designated as "National Wheatmeal," which contained 85 per cent of the wheat grain. The third flour investigated was that used for making ordinary white bread and represented about 75 per cent of the whole grain. Other wheat flours were not investigated; i. e., the so-called patent white flours, which in many instances represent but 30 to 40 per cent of the grain.

The results of this investigation were striking and conclusive. When the rats were fed at a suboptimal level which would represent a sort of restricted ration, the growth of all rats on the whole meal was distinctly and emphatically greater than on the "National Wheatmeal" and even more so than on white flour. In three separate experiments this advantage ranged from 50 to 60 per cent. If the results were calculated on the basis of their relative biologic value, which represents the relationship between the weight increase and the protein eaten, the results are also striking; i. e., the whole meal comes off with a figure of 1.60 to 1.71 as compared with the white flour figure of 1.33 to 1.46, with the value for the "National Wheatmeal" falling between these two values.

Dr. Chick also investigated the lessened digestibility of the whole meal over the other flours and found that the coefficient of digestibility of the whole meal protein was from 5 to 6 per cent less than that of the white flour. However, if this factor was taken into account in calculating the biologic value of the whole meal, its superiority in protein content becomes even more apparent. In other words, the biologic value of the digested part of this flour rises to a figure of 1.98 to 2.13 in contrast to white flour, which increased but slightly.

The reason for the superiority of whole meal is apparent from the well known facts concerning the protein contents of the various portions of the wheat grain. Although the endosperm or white part of the wheat comprises 83 per cent of the grain, its protein content (gluten) is but 11 per cent, whereas the bran, which constitutes 15 per cent of the grain, contains 18 per cent protein, while the germ, though but 1.5 per cent of the grain, contains 40 per cent protein. The gluten of white flour is known as a poor protein undoubtedly because of its inadequate content of certain essential amino acids, which act as limiting factors in its utilization. The point to be emphasized is that the proteins of the germ are composed of amino acids, which are able to supplement those of the gluten and thus raise the biologic value of the mixture out of proportion to the amount added. The same is true of the proteins of the bran, although it is probable that much of its protein may be unavailable for human digestion.

The inferences to be drawn from this study are obvious and fit beautifully with the well known vitamin studies of the various fractions of wheat. If we are to utilize as efficiently as possible the protein contained in wheat grain, it would seem most advisable to retain as much as possible of the protein constituents. In this sense, therefore, any milling which leads to a loss of some of the important proteins of wheat is distinctly to be deplored. Unfortunately, color seems to play an important part in the acceptability of various wheat flours by the public. Perhaps by education the popular habits may become so adjusted as to take advantage of the superior value of the whole grain over any flour that is made by extracting and removing part of the essential protein, not to mention its vitamin content.

1. Chick, Harriette: Biological Value of the Proteins Contained in Wheat Flours, Lancet **1**: 405 (April 4) 1942.

GERMICIDAL PLASTICS

Perfection of self-sterilizing plastics that can be used for the production of food containers, drinking cups and similar utensils or as a durable antiseptic paint or varnish to coat other exposed surfaces is now reported from the Rare Metal Institute, California Institute of Technology.[1]

Extremely small quantities of ionized copper, silver or gold have remarkable germicidal powers. Silver was selected by the California metallurgists as most promising because of its relatively low toxicity and comparative cheapness. The feasibility of coating surfaces with metallic silver was first ruled out, since such surfaces are soon "disactivated" by the formation of surface films of protein or other germicidally inert compounds. In order to produce a surface not susceptible to this "disactivation," only a portion of the available silver ions should be present on the surface, with an abundant supply of reserve ions protected from deterioration but so located as to permit rapid surface replacement by outward diffusion. To accomplish this the reserve silver compounds should be incorporated in some plastic material having the desired rigidity and outward diffusion rate.

The only inexpensive durable substances with the required properties are certain organic resins or plastics currently used in the production of the newer varnishes or paints. Silver compounds can be incorporated in the unpolymerized resins or dissolved or dispersed in the solvent. The further incorporation of a neutral, opaque filling material is of advantage if the germicidal surface is to be exposed to light. The resulting mixture is a viscous fluid which can be applied by brush or by spray. The fluid hardens in situ by polymerization or evaporation, forming a surface that is tasteless, odorless and resistant to mechanical wear. The total quantity of silver which the material must contain varies with the intended use and desired degree of permanence. One Gm. of silver ions for 1,000 square centimeters of exposed surface is the heaviest type of varnish thus far developed.

The germicidal properties of such surfaces have been tested with a number of yeasts, molds and saprophytic bacteria. The test micro-organisms are suspended in distilled water, peptone water, sucrose solution, cider, milk or other desired medium, which is spread as a thin film over the test surface. At intervals samples of the film are removed by means of a sterile cotton swab, and the number of viable micro-organisms is determined by routine cultural methods. The germicidal efficiency of the surface is judged by the rate of decrease in the viable count. With the most efficient surface thus far prepared, 100 million of Escherichia coli per cubic centimeter of suspension fluid are killed in less than one minute. Other surfaces require five or more minutes for total sterilization.

The rate of sterilization does not vary appreciably for the vegetative forms of different bacterial species. Spores, however, are less readily killed, B. subtilis spores, for example, suspended in cider or sugar peptonic solution requiring fifteen to thirty minutes for a 95 per cent reduction in viable count. Surfaces are not appreciably impaired by repeated washing, until the plastic layer is completely removed by mechanical wear.

Thus far acid fast bacteria and pathogenic viruses have not been tested with the new germicidal plastics. The plastic is readily applicable to metal, glass and wood surfaces or absorbed in paper or cloth. It is resistant to acids, alkalis and boiling water but may be readily removed by certain organic solvents. Its predicted effects in controlling microbic infections, however, have not yet been confirmed experimentally or statistically.

1. Goetz, Alexander; Tracy, R., and Goetz, S.: Science **95**: 537 (May 22) 1942.

Current Comment

RUBBER DERMATITIS

Facial dermatitis caused by rubber respirators has been reported by Petro,[1] who observed 16 cases among the personnel at one of the Royal Navy depots. The diagnosis of rubber dermatitis due to the wearing of masks was suspected on the ground that (1) the lesions showed a distribution which was mainly confined to areas of facial contact with the rubber face pieces, (2) symptoms and signs manifested themselves either for the first time or, if already present, in an aggravated form on the day following respiratory exercise, (3) mild and evanescent symptoms, worse with each exercise, were admitted in retrospect by a number of patients, (4) some cases followed a recent change in type of respirator, (5) the masks bearing embossed lettering of certain firms alone were found responsible for the dermatitis and (6) patch tests with rubber disks cut from the patients' respirators and applied to their forearms showed positive reactions. Schwartz and Tulipan [2] point out that most of the cases of dermatitis observed by them in the rubber industry were due, not to the rubber itself, but to the accelerators and the antioxidants used in the manufacture of rubber. Among the accelerators used, hexamethylenetetramine was the one found to cause the most dermatitis. The diagnosis in cases reported by Petro was confirmed by ascertaining the nature of all "accelerators" and "antioxidants" used in the manufacture of service masks and by finding their respective irritant properties in tests on sensitized subjects and normal controls. Two offending substances and their concentrations were found to be responsible for the dermatitis. The types of mask owned by the 16 patients were all found to be of a manufacture in which one or another of these irritant compounds had been used. From three to

1. Petro, John: Respirator Dermatitis, Brit. M. J. **1**: 631 (May 23) 1942.

2. Schwartz, Louis, and Tulipan, Louis: A Textbook of Occupational Diseases of the Skin, Philadelphia, Lea & Febiger, 1939.

fifteen exposures to potentially harmful masks for fifteen minutes at weekly intervals were necessary for the production of sensitization in predisposed subjects. The degree of perspiration, depending on atmospheric temperature, humidity, exercise, diet and individual variation, proved an important predisposing factor. The lesions in the early stage were confined to areas of the face which came into close contact with the mask. When confluent, these had the appearance of an oval band of dermatitis surrounding a clear central portion of the face. The early erythema stage of dermatitis was followed by vesicular and weeping stages frequently associated with edema of the lax tissues, which gave an appearance of puffiness and double chin. A deepseated submental induration occurred in 4 cases. The patch test gave positive results in susceptible subjects only when these had become sensitized; consequently it was impossible to forecast susceptibility and to anticipate respirator dermatitis. Petro suggests that the most effective prophylactic measure would be to recall all the potentially harmful masks and to replace them by innocuous varieties.

COUNTY "ACCREDITATION"—A NEW IDEA IN HUMAN TUBERCULOSIS CONTROL

Tuberculin testing of cattle has come to be an accepted public health procedure in the United States. Testing of herds and eradication of reactives has progressed so that the entire continental area of the United States is now included in the so-called modified accredited area, that is, areas in which reactives on retesting number less than 0.5 per cent of cattle tested. The Minnesota State Medical Association and the Minnesota Department of Health have begun accrediting counties for their endeavor and success in finding and controlling tuberculosis in human beings.[1] A set of standards has been established which requires an average death rate of less than 10 per hundred thousand of population and a rate of infection among high school seniors of less than 15 per cent, based on a recent tuberculosis testing survey. Extensive instructions are given as to how to check the detailed requirements, which include availability of adequate care in sanatoriums, a satisfactory case finding program, health education directed at discovery of early tuberculosis and provision of adequate treatment for its victims. In this project the medical profession, the sanatoriums, public health educators, county public health nurses, county commissioners, public health boards and the voluntary Christmas Seal organization are participating. Attractive certificates have been prepared; the first has been awarded to Lincoln County, a rural county located in southwestern Minnesota. This is signed by the state health officer, the president of the state medical society and the governor of the state. In addition, handsome distinguished service award plaques have been awarded to two Minnesota physicians for "achievement in human tuberculosis control" by "public health activities." Thus Minnesota pioneers in applying to the problem of human tuberculosis methods which have been successful in eradicating tuberculosis among cattle. Since the human reactor must be educated whereas the bovine reactor is eliminated by slaughter the process will be slower, but the principles are sound.[1]

1. County Accreditation, Everybody's Health Magazine, published by Minnesota Public Health Association, St. Paul **17**: 8 (June, July, Aug.) 1942.

AN EXTRAORDINARY CASE OF OBESITY

Excessive weight has long had extraordinary interest. Recently Willoughby,[1] in a survey of the literature, found only 16 instances of persons weighing 700 pounds or more. Of these, 10 were men and 6 were women. The heaviest man weighed more than 1,000 pounds and the heaviest woman reputedly weighed 850 pounds. His report of the case of a woman weighing more than 700 pounds is principally to present a formula of what he calls an index of "relative obesity" whereby fatness may be rated. In other words, the height must be considered as well as the weight so that the classificatory index relates the width of the body to the height. Judging by this index, Willoughby believes that the subject he reports, a 35 year old woman weighing about 800 pounds, is the fattest human being known at the present time and possibly of all time. The observations are based on the subject when weighing 772 pounds with a stature of 5 feet 5½ inches. This ratio of weight to height presents girth measurements which in general are 2.41 as great as those of a woman of medium build of the same height, and in none of the 16 other subjects of known height which he was able to review is the index of relative obesity higher than 2.22. Willoughby believes it is evident that every possible fat favoring factor combined to produce this person's unique bulkiness of figure, including heredity, exceptionally large appetite and likewise a constitutional metabolism that was abnormally efficient in producing and storing fat.

MEDICAL IMPERSONATION AS A MINOR CRIME

Elsewhere in this issue of THE JOURNAL (page 145) is one of the most amazing stories of medical imposture that has ever appeared in the pages of this publication. Over a period of twenty years this impostor continued a "vocation" of impersonating a physician in spite of intervening convictions and imprisonment. Following his most recent arrest he was given the maximum sentence in California for such practice. This sentence is six months in the county jail and a $600 fine. A month later he was sentenced for illegal possession of firearms. His sentence for this crime was nine months in jail. This nine month sentence was not for shooting at some one or even aiming in the general direction of an innocent bystander but merely for the possession of a lethal weapon. The six month sentence resulted from his acting as chief assistant surgeon in a hospital. This would obviously include not just the possession of a scalpel but the use of one on unsuspecting patients. A comparison of the length of the two sentences emphasizes the ludicrous aspects; perhaps authorities will now institute legislation to make the punishment for practicing medicine without a license at least as serious as carrying a razor.

1. Willoughby, David P.: An Extraordinary Case of Obesity and a Review of Some Lesser Cases, Human Biology **14**: 166 (May) 1942.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war and such other information and announcements as will be useful to the medical profession.

POLICIES GOVERNING INITIAL APPOINTMENT OF MEDICAL OFFICERS

The Surgeon General of the Army published detailed information concerning policies governing the initial appointment of physicians as medical officers on April 23, 1942. Necessary changes are given wide publicity, at his request, in order that the individual applicants, and all concerned in the procurement of medical officers, may know the status of such appointments.

The current military program provides for a definite number of position vacancies in the different grades. The number of such positions must necessarily determine the promotion of officers already on duty and, in addition, the appointment of new officers from civilian life. Such appointments are limited to qualified physicians required to fill the position vacancies for which no equally well qualified medical officers are available. Such positions calling for an increase in grade should as far as possible be filled by promotion of those already in the service and not by new appointments.

If this policy is not followed, it would definitely penalize a large number of well qualified lieutenants and captains already on duty by blocking their promotions which have been earned by hard work. In view of these facts it has been deemed necessary to raise the standards of training and experience for appointment in grades above that of first lieutenant.

With this in view, the Surgeon General has announced the following policy, which will govern action to be taken on all applicants after Sept. 15, 1942:

All appointments will be recommended in the grade of first lieutenant with the following exceptions:

Captain.—1. Eligible applicants between the ages of 37 and 45 will be considered for appointment in the grade of captain by reason of their age and general unclassified medical training and experience.

2. Below the age of 37 and above the age of 32, consideration for appointment in the grade of captain will be given to applicants who meet all of the following minimum requirements:

(*a*) Graduation from an approved medical school.

(*b*) Internship of not less than one year, preferably of the rotating type.

(*c*) Special training consisting of three years' residency in a recognized specialty.

(*d*) An additional period of not less than two years of study and/or practice limited to the specialty.

3. Eligible applicants who previously held commissions in the grade of captain in the Medical Corps (Regular Army, National Guard of the United States, or Officers Reserve Corps) may be considered for appointment in that grade provided they have not passed the age of 45 years.

Major.—1. Eligible applicants between the ages of 37 and 55 may be considered for appointment under the following conditions:

(*a*) Graduation from an approved school.

(*b*) Internship of not less than one year, preferably of the rotating type.

(*c*) Special training consisting of three years' residency in a recognized specialty.

(*d*) An additional period of not less than seven years of study and/or practice limited to the specialty.

(*e*) The existence of appropriate position vacancies.

(*f*) Additional training of a special nature of value to the military service, in lieu of the foregoing.

2. Applicants previously commissioned as majors in the medical Corps (Regular Army, National Guard of the United States or Officers Reserve Corps) whose training and experience qualify them for appropriate assignments may be considered for appointment in the grade of major provided they have not passed the age of 55.

Lieutenant Colonel and Colonel.—In view of the small number of assignment vacancies for individuals of such grade, and the large number of reserve officers of these grades who are being called to duty, such appointments will be limited. Wherever possible, promotion of qualified officers on duty will be utilized to fill the position vacancies.

Much misunderstanding has arisen concerning recognition by specialty boards and membership in specialty groups. It will be noted that mention is not made of these in the preceding paragraphs. This is due to the variation in requirements of the different boards and organizations. Membership and recognition are definite factors in determining the professional background of the individual but are not the deciding factors, as so many physicians have been led to believe.

The action of the grading board, established by the Surgeon General in his office, is final in tendering initial appointments. Proper consideration must be given such factors as age, position vacancies, the functions of command and original assignments. All questionable initial grades are decided by this board. Owing to the lack of time, no reconsideration can be given.

There are in the age group 24-45 more than a sufficient number of eligible qualified physicians to meet the Medical Department requirements. It is on this age group that the Congress has imposed a definite obligation of military service through the medium of the Selective Service Act. The physicians in this group are ones needed now for active duty. The requirements are immediate and imperative. Applicants beyond 45 years may be considered for appointment only if they possess special qualifications for assignment to positions appropriate to the grade of major or above.

WOMEN PHYSICIANS RAISE $2,000 FOR RELIEF FUND

Women physicians affiliated with the Luzerne County Medical Society in Pennsylvania, who comprise the local branch of the Medical and Surgical Relief Committee of America, have sent to the committee headquarters in New York more than $2,000 in addition to the medical supplies, surgical instruments and dental equipment. The funds were raised through the sale of the committee's mercy emblems. The women physicians were assisted by the woman's auxiliary to the Luzerne County Medical Society, by nurses in the local hospitals and by various alumni associations. The surgical instruments were collected from physicians, dentists and druggists throughout the county. The sale of emblems was conducted in Wilkes-Barre, Plymouth, Wyoming, Luzerne, Dallas, Pittston, Nanticoke and Forty Fort. Dr. Marjorie E. Reed of Plymouth, Pa., is the national chairman of the women's activities of the Medical and Surgical Relief Committee of America.

SUGAR FOR ACUTELY ILL PATIENTS

The Office of Price Administration declared on August 27 that hospitals principally engaged in care of persons acutely ill will be able to provide patients the same amounts of sugar used last year, as a result of a change in the sugar rationing regulations. Amendment No. 9 to Rationing Order No. 3 authorizes hospitals of that kind to obtain 65 per cent of the sugar base they have established for meals and food services instead of 50 per cent as heretofore, starting with the September-October allotment period. Added to this will be the so-called "bonus" allotment, amounting to 25 per cent of the base, which will be available to all classes of institutional users for the September-October period. Thus the hospital allotment, 65 per cent plus the 25 per cent "bonus," will amount to 90 per cent of the base for the September-October period. By holding down their use of sugar for non-patients (members of the staff and others who eat at the hospital) to the 75 per cent level to which restaurants or other eating places are limited in this period, the hospitals will have enough sugar to provide patients with the full amounts they allowed to patients a year ago.

To qualify for the bigger allotment, a hospital must show that it is principally engaged in the care of patients who are acutely ill and who temporarily live within the hospital for medical or surgical care. A hospital principally treating chronic cases or mental illnesses and an institution such as a rest home or sanatorium are not eligible. The effective date of the amendment was September 2.

GAS OFFICERS' INSTITUTE IN DETROIT

The Detroit Office of Civilian Defense sponsored a gas officers' institute in that city, August 18-September 3, which was attended by four hundred chemists who will be gas identification officers serving in the city's air raid defense program. The same instruction was given to fifty emergency medical officials and others from twenty-five cities in Michigan outside of Detroit and to fifty defense leaders from several other states in the Middle West. This expansion of the original scope of the instruction was made at the request of the War Department and the Michigan Council of Defense. In addition to those enrolled in the courses, four hundred zone and sector wardens and hundreds of other employees were to have been trained in decontamination work. Most of the sessions were held at the Rackham Educational Memorial Building in Detroit and the laboratory experiments at Wayne University. The lecturers included Col. Ralph E. Tarbett, chief sanitary engineer of the Office of Civilian Defense, Washington, D. C.; Lieut. Col. Willard A. Johnston, head of the Chemical Warfare Service's civilian protection school at Purdue University; C. S. Schoepfle, chairman of the University of Michigan chemistry department; H. B. Cutter, associate professor, Wayne University; Dr. Frederick F. Yonkman of the Wayne University College of Medicine; William G. Frederick, chief chemist of the bureau of industrial hygiene, Detroit Department of Health; Albert G. Gassman and Francis F. Farley, University of Detroit chemistry instructors, and Edward J. Bird, professor of analytic chemistry, Wayne University.

MOUNT SINAI HOSPITAL UNIT RECEIVES FLAG

On August 28 at Mount Sinai Hospital, New York, World War I veterans of Base Hospital No. 3 presented an American flag to the new third U. S. Army General Hospital, the Mount Sinai Hospital Unit, which departed on September 1 for a period of training in the South preparatory to going overseas. Col. George Baehr, who is on leave of absence from Mount Sinai and is serving as chief medical officer of the Office of Civilian Defense in Washington, D. C., presented the flag to the new unit on behalf of his fellow veterans. Lieut. Col. Herman Lande of the new general hospital received the banner. The new hospital was presented also at this ceremony with a check from the board of trustees to cover emergency and special needs and a check from the Mount Sinai staff alumni association to provide recreational features. The physicians on the staff of the third General Hospital on that day were Harold A. Abel, Edward J. Bassen, Edgar M. Bick, Simon Dack, Henry Doubilet, Morris Feresten, Leon Ginzburg, Moses N. Holland, Henry Horn, Edward E. Jemerin, Samuel Karelitz, Samuel H. Klein, Percy Klingenstein, Herman Lande, Gerson J. Lesnick, Hyman Levy, Jack H. Levy, Ralph E. Moloshok, Abraham Penner, Abou D. Pollack, Herbert Pollack, I. Scotty Schapiro, Gabriel P. Seley, Solomon Silver, Sidney M. Silverstone, Irving Solomon, Irving Somach, Morris F. Steinberg, Moses Swick, Lester R. Tuchman, Robert I. Walter, Louis R. Wasserman, Edwin A. Weinstein, Vernon A. Weinstein, Julius L. Weissberg and Louis E. Zaretski.

WOMEN'S AUXILIARIES AID RELIEF COMMITTEE

The Medical and Surgical Relief Committee of America, with headquarters at 420 Lexington Avenue, New York, acknowledges the generous cooperation of the following women's auxiliaries to various county and state medical societies, through whose efforts twenty-two emergency medical field sets, supplies and equipment valued at $15,000 have been sent out by the national committee:

Georgia State Medical Society
Cook County Medical Society, Illinois
Shreveport Medical Society, Louisiana
Genessee County Medical Society, Michigan
Houghton-Keweenaw-Barago County Medical Society, Michigan
Jackson County Medical Society, Michigan
Kent County Medical Society, Michigan
Marquette-Alger Medical Society, Michigan
Michigan State Medical Society
Tri-County Medical Society, Michigan
Hennepin City Medical Society, Minnesota
New Hampshire State Medical Association
Bergen County Medical Society, New Jersey
Middlesex County Medical Society, New Jersey
North Carolina State Medical Association
Wake County Medical Society, North Carolina
Belmont County Medical Society, Ohio
Mohoning County Medical Society, Ohio
Ohio State Medical Association
Bradford County Medical Society, Pennsylvania
Cambria County Medical Society, Pennsylvania
Clinton County Medical Society, Pennsylvania
Lehigh County Medical Society, Pennsylvania
Luzerne County Medical Society, Pennsylvania
Mercer County Medical Society, Pennsylvania
Montour County Medical Society, Pennsylvania
Ellis County Medical Society, Texas
Richmond County Medical Society, Virginia
West Virginia State Medical Association

CONSERVATION OF MEDICAL AND SURGICAL SUPPLIES

The Office of Civilian Defense, Washington, D. C., August 21, issued Medical Division Memorandum No. 16, which was forwarded through the state chiefs of emergency medical service to local chiefs and to hospitals and state and local medical societies. The statement emphasized that the medical profession and the hospitals of the nation will shortly be obliged to depend on dealers' stocks of medical and hospital supplies if they are to maintain their present level of efficiency. The continued shortage of raw materials makes it evident that even the armed forces may have difficulty in securing their requirements. Stocks on the shelves of the dealers of this nation constitute the only reserve of medical and hospital equipment which may be available in the near future to meet civilian needs. The hoarding and dead storage of equipment and supplies for a possible emergency should therefore be discouraged. Any unexpected emergency could be met by our present civilian medical and hospital resources; continued disaster could be met only by the utilization of military stores which would be made available if there should be urgent need.

Any surplus or obsolete equipment now in the possession of physicians and hospitals ought not to be dispersed at this time because of the difficulty of replacement and the possibility that it may be needed for the establishment of emergency base hospitals.

WAR CASUALTIES

The Office of War Information announced on July 21, according to the Associated Press, that the U. S. armed forces had suffered since the start of the war 44,143 casualties, including 4,801 dead, 3,218 wounded and 36,124 missing. The total included those of the Army, Navy, Marine Corps, Coast Guard and the Philippine scouts, but not the casualties of the Philippine Commonwealth Army. Since the bulk of the army casualties fall in the category of missing, most of whom were at Bataan and Corregidor and in Java, they are believed to be prisoners of war, although no definite report as to their status has been received from the International Red Cross. Those reported killed comprised 902 in the Army, 3,420 in the Navy and 479 in the Philippine scouts. The wounded comprised 1,413 in the Army, 1,051 in the Navy and 754 in the Philippine scouts. Those reported missing comprised 17,452 in the Army, 7,672 in the Navy and 11,000 in the Philippine scouts.

CHICAGO GROUP ON ACTIVE DUTY

Thirty-seven physicians, mostly at present or formerly associated with St. Luke's Hospital, Chicago, were commissioned in the United States Army Medical Corps in July and ordered to report for duty at an air corps medical unit in a western state. The following are members of this group: Majors James W. Clark, Percy J. Ross, Fred E. Ball, Claude N. Lambert, John I. Brewer and Robert E. Williams; Capts. Willis G. Diffenbaugh, John H. Pribble, Howard W. Merideth, Chester Coggeshall, Robert G. McMillan, William L. Waskow, Leslie R. Grams, George A. Ingrish and Paul H. Dube; Lieuts. LeRoy E. Walter, Claude R. Snead, Frank W. Jones, Joseph A. Davis, William Burgett Smith, Clarence Kristiansen, John B. Case, Carl H. McLauthlin, John T. Parker, Don J. Hunter, Frank R. Gondek, Lawrence De Renne, Robert C. Lawson, Ryland A. Buckner, Thomas G. Hobbs, Hosmer T. Merrell, Stephen C. Scott and Richard Oliver. Lieuts. J. S. Clark Jr., Francis S. North and Brendan P. Phibbs were ordered to report to Carlisle Barracks, Carlisle, Pa., for training before joining their units elsewhere.

EMERGENCY MEDICAL SERVICE IN WAR DEPARTMENT PLANTS

The Office of Civilian Defense has notified its regional medical officers that General Somervell, commanding the army services of supply, has ordered all plants owned by the War Department, as well as civilian plants engaged in production of war material, to plan with local chiefs of the Civilian Defense Emergency Medical Service for the use of available emergency medical facilities. General Somervell also ordered plant protection inspectors to make sure such plans have been formulated. The Office of Civilian Defense has also announced that the Navy is sending out with its official approval OCD recommendations regarding coordinated plans by industrial plants to use the protection facilities of the Emergency Medical Service in the same manner.

The OCD memorandum also outlined plans for all factories. Industrial plants are expected to provide medical services and first aid equipment within the plant, but, in event of enemy action, plant physicians, nurses and first aid detachments may be unable to care for all the seriously injured. "It is considered essential, therefore," the OCD said, "that protection of personnel in the plant be coordinated with the local Emergency Medical Service, so that plant facilities may be supplemented by those of the OCD organizations in case of need."

YOUNGSTOWN'S AMBULANCE POOL

For emergency purposes the ambulances in Youngstown, Ohio, have been pooled and assigned to one of two "identification centers," where they will go at the first sound of the alert and await orders from the control center in the city. The ambulances will be supplied by the undertakers under the Mahoning County civilian defense plan. All drivers and assistants assigned have been trained in first aid.

YALE HOSPITAL UNIT MOBILIZED

The Yale University Medical School Hospital Unit was mobilized on July 15 for war duty as U. S. Army General Hospital No. 39, the personnel of which will comprise some fifty physicians, seven dentists and one hundred and three nurses and civilian specialists. The Yale Unit in the first world war (Mobile Hospital No. 39) is said to have been the first American hospital unit to land in France and, among other places, served during the St. Mihiel offensive. The present unit will undergo a period of training and then is expected to go on foreign service. Dr. James C. Fox Jr., clinical professor of neurology at Yale, who has been acting director of the unit, now becomes chief of the medical service with rank of lieutenant colonel. Lieut. Col. Ashley W. Oughterson, associate professor of surgery, will be chief of the surgical service. According to the New York *Times* the following members are from the greater New Haven area except where noted:

MAJORS

Edward A. Abbey
Courtney C. Bishop
Charles A. Breck, Wallingford
John H. Bumstead
George G. Carter, Greenwich
Louie N. Claiborn
Michael D'Amico
Paul A. Harper, Bridgeport
Edward J. Manwell, Northampton, Mass.
Conrad W. Newberg
Edward J. Ottenheimer, Willimantic
Clarence L. Robbins
Francis A. Sutherland, Torrington
Lloyd J. Thompson

CAPTAINS

Warren T. Brown
William J. Bruckner
Willard E. Buckley, Middletown
Orrin F. Crankshaw, Summit, N. J.
Jachin B. Davis
Joseph N. D'Esopo
William R. Dunleavy
Sidney Feyder
Russell V. Fuldner
Daniel B. Hardenbergh, Bridgeport
Orvan W. Hess
Wilbur D. Johnston
Robert H. Jordan
Gerald Klatskin
Averill A. Liebow
Henry Merriman
Nathan T. Milliken, Hanover, N. H.
William L. Peltz
William S. Perham
Joseph F. Sadusk Jr.
Luther M. Strayer Jr., Bridgeport
Max Taffel
Malvin F. White, Brooklyn
Fred A. Wies

FIRST LIEUTENANTS

David Crocker
William W. Dean
Richardson E. Edmondson, Morgantown, W. Va.
Louis Allan Erskine
Wilbur N. Falk
Newton E. Faulkner
Seymour J. Kreshover
Ralph J. Littwin, Ayer, Mass.
James W. Major
Paul D. MacLean
Frederick A. Post
Jack D. Rosenbaum
Louis G. Welt
Paul S. Hansen, Essex, Conn.

LARGEST CLASS GRADUATES AT CARLISLE BARRACKS

More than eight hundred officers of the medical department, representing the largest class in the history of the Medical Field Service School at Carlisle Barracks, Pa., graduated from a field training course July 31 and left after the ceremonies to join their respective units. The class was addressed by Major Gen. James C. Magee, Surgeon General of the Army, who was introduced by Brig. Gen. Addison D. Davis, commandant. A brief history of the school was given at this time by Col. Albert S. Dabney, assistant commandant. The officers graduating were chiefly first lieutenants who had recently completed their internships. The subjects taught included military sanitation, military art, field medicine, administration and logistics.

OAKLAND WILL REIMBURSE HOSPITALS

The city of Oakland, Calif., and the local hospitals have entered into a contract, according to *Modern Hospital* of August 1942, whereby the city agrees to pay the hospitals for the care of civilian air casualties the difference between $3.75 a day, which the federal government will pay under the Office of Civilian Defense program, and the actual cost of the service rendered, which, however, cannot exceed the charge regularly made for industrial accident cases. This contract, it is said, is made in consideration of the hospital's agreement to maintain emergency medical services for the care of civilian air casualties.

DUKE HOSPITAL UNIT GOES ON ACTIVE DUTY

The officer personnel of the U. S. Army Hospital No. 65, which is composed largely of members of the staff of Duke Hospital, Durham, N. C., former staff members and alumni of Duke University School of Medicine, departed on July 15 for an unannounced station for active service. The Duke Medical Unit, comprising fifty-eight physicians, dentists and administrative officers, has been in process of organization for more than a year, and although forty-seven of its staff members are said to be North Carolinians, some who joined the unit have been practicing in many parts of the country. The members were given a farewell party at the Hope Valley Country Club, at which time a United States flag was presented to the unit. Lieut. Col. Elbert L. Persons will be chief of the medical service, and Lieut. Col. Clarence E. Gardner chief of the surgical service. The chief nurse will be Miss Elizabeth White, assistant superintendent of nurses at Duke Hospital. According to the Durham (N. C.) *Morning Herald* the roster of officers is as follows:

MAJORS

Lea Alexander, Durham
Erle B. Craven Jr., Lexington
Cyrus C. Erickson, Durham
William Farmer, Greensboro
Robert L. Garrard, Durham
William L. Haltom, Martinsburg, W. Va.
Jerome S. Harris, Durham
Thomas T. Jones, Durham
Gibbons Westbrook Murphy, Asheville
Louis Roberts, Durham
William Schulze, Durham
O. Norris Smith, Greensboro
Walter L. Thomas, Durham
Samuel E. Upchurch, Durham
P. B. Whittington, Greensboro
Louis Ziv, Portsmouth, Va.

CAPTAINS

Raymond B. Anderson, Durham
Elbert G. Apple, Greensboro
Ralph Arnold, Durham
Gordon Axelson, Boston, Mass.
Trogler Adkins, Durham
William Bridgers, Newport News, Va.
Everett Bugg, Fort Bragg
James H. Cherry, Asheville
Robert L. Craig, Durham
William Hollister, Durham
Julian Jacobs, Charlotte
Arthur James, Columbus, O.
Arthur Joistad, Ann Arbor, Mich.
Robert Lincicome, Durham
Coyte R. Minges, Rocky Mount
Norman R. Ross, Durham
Will C. Sealy, Durham
Joseph Stevens, Greensboro
Christopher Stuart, Winchester, Va.
R. Burke Suitt, Durham
Hugh Swingle, Johnson City, Tenn.
Everett Teague, Reidsville
Edwin H. Thornhill
Chester Waters, Omaha, Neb.

FIRST LIEUTENANTS

Howard D. Apple, Greensboro
William S. Branning, Durham
S. Grayson Brothers, Durham
Ivan Brown, Durham
Woodrow Burgess, Durham
Fred S. Caddell, Graham
Linus M. Edwards Jr., Durham
Stanly Karansky
Harold B. Kernodle, Durham
Glenn Newman, Durham
Paul Schanner, Durham
Charles C. Stanffer, Washington, D. C.

SECOND LIEUTENANTS

Eugene T. T. Brown, Durham
J. Kent Davis, Greensboro
Sam O. Gilmer, Durham
Archie Millis, Durham

MEDICAL OFFICERS FOR NEW DIVISIONS

At the Medical Field Service School, Carlisle Barracks, Pa., a class of medical officers and medical administrative officers were awarded diplomas following a special training course for particular assignments in medical battalions of several triangular infantry divisions which are being activated. This class received its special training at the same time that classes were being conducted at other army service schools to train officers of other branches of the army similarly. The graduates, who came from twenty-seven different states, left immediately after graduation to take their positions in the new units being organized. Another class to take the course arrived at Carlisle Barracks the following day.

THE ST. LOUIS ARMY MEDICAL DEPOT

The addition of several stories to the Medical Depot at St. Louis, which is expected to be completed this month, will make this building the largest structure in the city, a position which was formerly held by a bottling plant of the Anheuser-Busch Company, which had 25 acres of floor space under one roof. The building, which has been remodeled, was purchased by the War Department about a year ago. The director of the depot at the time of this report was Col. Royal K. Stacey.

FLAG PRESENTED TO NEW OREGON UNIT

At a ceremony at the University of Oregon School of Medicine, the flag of the University of Oregon Medical School Unit (Base Hospital No. 46), which served in France in the first world war, was presented to the new University of Oregon Medical School General Hospital Unit, which then left for a period of training in Kansas. The flag of the old unit is said to have been the first U. S. emblem to enter Cherbourg in the first world war and after the war was returned to the medical school for safe keeping through the intervening years. At the ceremony the flag was presented to the new hospital unit by Dr. Thomas M. Joyce, who commanded Base Hospital No. 46 in 1918; the nurses' flag of the unit was presented by Grace Phelps, who was chief nurse of the old base hospital and recently retired as superintendent of nurses at the Doernbecher Hospital. The staff of the new unit comprises some sixty physicians and one hundred nurses. Others participating in the ceremony were Donald M. Erb, president of the University of Oregon, Chancellor Frederick M. Hunter, Associate Dean David W. E. Baird, Ralf Couch, administer of the university hospitals, and Elnora Thomson, head of the department of nursing.

FEDERAL AID FOR MEDICAL STUDENTS PURSUING ACCELERATED COURSES

Regulations have now been issued by the U. S. Office of Education for the distribution of the five million dollars recently made available by Congress to aid financially students participating in accelerated programs in certain degree granting colleges, including medical colleges (*Federal Register* **7**:6747 [Aug. 26] 1942). The Office of Education has also issued a mimeographed memorandum containing a series of questions and answers as a guide to colleges and universities desiring to participate in the loan program. Each institution having an approved accelerated program, desiring loans for any of its students, must submit to the Commissioner of Education, on SWL Form 1, its plan of accelerated program, the number of students pursuing the course and an estimate of the number of such students needing loans, together with the total loan fund allotment required to meet such estimated needs. Copies of all regulations, forms and other material relating to this loan program may be secured from the U. S. Office of Education, Washington, D. C.

CHEMICAL WARFARE DEMONSTRATIONS AT BUFFALO

The War Department's Civilian Protection School, the Health Preparedness Commission of the State War Council and the Buffalo Emergency Medical Service arranged demonstrations on August 7 in which sixty-two physicians obtained practical experience in chemical warfare, following a brief lecture by Major Theodore E. Odland, U. S. Army. Shells of various types of warfare gases were detonated, the physicians were taught how to apply gas masks and then they entered a tear gas chamber. Major Odland was assisted in these demonstrations by Dr. Roy M. Seideman of Rochester, district medical officer of the Health Preparedness Commission, and by Major Bourke of the New York State Health Preparedness Commission.

SHORT COURSES IN LITTLE ROCK ON POISON GAS

The University of Arkansas School of Medicine, Little Rock, in cooperation with the state board of health and the Office of Civilian Defense, will begin short courses of about a week in a statewide program to instruct physicians, nurses and others in methods of defense against poison gas. The instructors will be Dr. Fred William Harris, assistant professor of medicine, and Dr. Randolph Smith, professor of surgery, who recently attended a chemical warfare course sponsored by the Office of Civilian Defense at the University of Cincinnati; other members of the faculty of medicine will assist in the instruction.

ENLISTED MEN COMMISSIONED TO RELIEVE PHYSICIANS FROM ADMINISTRATIVE WORK

A class of several hundred enlisted men chosen for their ability, education and faithful performance of duty completed an intensive training course at the Medical Field Service School, Carlisle Barracks, August 25, and were commissioned second lieutenants in the Medical Administrative Corps. Other classes had previously graduated and others are now undergoing training. The new officers will take over the administrative duties in medical units and thereby release medical officers for professional work. Forty-one states and the District of Columbia were represented in the class, and the new officers represented thirty-four types of civilian occupations. The commissions were presented by Brig. Gen. Addison D. Davis, commandant of the school, and the oath of office was administered by Major Thomas E. Hester, adjutant of the Army Medical Center at Washington, D. C., one of the senior officers of the Medical Administrative Corps. Major Gen. James C. Magee, Surgeon General of the Army, sent a special message of congratulation.

THREE DAY COURSE IN CHEMICAL WARFARE

Seventy doctors from the New England states completed a three day course in chemical warfare August 9 at a school in Boston, where they learned the technic of using gas masks in actual experience with war gases. The students mastered the technic of removing the mask from the container and putting it on in the recognized normal time of eleven seconds. At one of the fire department stations they entered a chamber filled with tear gas and then observed a demonstration at the Huntington Memorial Hospital of how gas victims are decontaminated.

NAMES FOR NEW ARMY HOSPITALS

An army general hospital located in Iowa will be called the Schick General Hospital, in honor of Dr. William R. Schick Jr. of Chicago, who is said to have been the first U. S. Army flight surgeon to lose his life in this war. Dr. Schick was killed at Pearl Harbor.——An army hospital in Tennessee has been named the Kennedy General Hospital, in honor of the late Brig. Gen. James M. Kennedy, U. S. Army Medical Corps, who during the first world war was surgeon for the New York port of embarkation and later was in command of the Walter Reed General Hospital.

DR. LOYAL DAVIS ON DUTY IN SURGEON GENERAL'S OFFICE

Dr. Loyal Davis, head of the surgical department of Northwestern University Medical School, Chicago, and editor of *Surgery, Gynecology and Obstetrics,* has been commissioned a lieutenant colonel in the U. S. Army Medical Department and assigned to duty as consultant in neurosurgery in the Surgeon General's Office, Washington, D. C. Dr. Davis served in the first world war and from 1922 to 1924 was associated with the late Dr. Harvey Cushing of Boston. He then came to Chicago as associate professor of surgery at Northwestern and in 1932 became head of the department of surgery.

NINE DAY COURSE IN DEFENSE INSTRUCTION

Sixty-six civilian defense leaders from southern California and Arizona on August 3 began a nine day course of defense instruction at Occidental College, Los Angeles. The course was under the supervision of the Chemical Warfare Service and included first aid, war gases, explosives, gas decontamination, air raid warning systems and other defense measures. Similar courses for educational executives and others in essential defense industries were to follow.

TULANE MEDICAL UNIT ACTIVATED

Tulane University, New Orleans, tendered a farewell banquet to the members of its medical unit at the Jung Hotel, July 9, prior to activation of the unit for service with the armed forces. The unit, Army General Hospital No. 24, was organized more than a year ago under the supervision of Lieut. Col. Mims Gage, who will be chief of the surgical service. Lieut. Col. Roy Hope Turner will be chief of the medical service. On this occasion the colors were presented to Col. Clifford Royals, commander of the unit, on behalf of the board of administrators and the faculty of the university. The principal speaker was Dr. Rudolph Matas, who organized Base Hospital No. 24 for service in the first world war. Dr. Matas reviewed the history of the former Tulane Medical Unit and expressed a wish that its traditions be carried on by the present group. Other speakers were Dr. John H. Musser, toastmaster, Dr. King Rand, who served with Base Hospital No. 24, and Drs. Gage and Turner. According to the New Orleans *Times-Picayune* the other members of the staff are as follows:

MAJORS

John J. Archinard	James B. McLester
Henry J. Bayon Jr.	John M. Miles
Louis S. Charbonnet Jr.	Warren L. Rosen
Bentley P. Colcock	Charles W. Rossner Jr.
Samuel H. Colvin Jr.	James H. Watkins
Francis J. Cox	Carl J. Wilen
George B. Grant	Edward H. Ray

CAPTAINS

Philip J. Bayon	Marvin C. Smith
Charles A. Chambers	Richard P. Vieth
Abraham H. Diaz	Richard W. Vincent
Harry Fishbein	John C. Weed
Richard G. Holcombe	John D. Welch
Henry A. King	Peter Everett
Mercer G. Lynch	John Dyer
Hippolyte P. Marks Jr.	Stanley Cohen
Edward Matthews	E. G. DeBakey

FIRST LIEUTENANTS

William McDonald Boles	Ervil L. Perdue
E. J. Giles	Joseph A. Sabatier
John Robert Snavely	Louis S. Schwartz
Abraham M. Gordon	Mortimer Silvey
Charles S. Healey	Philip C. Trout
Cheney C. Joseph	Robert W. Webb
Robert J. Meade	Thomas E. Weiss
Henry H. Miles	Frederick J. Wolfe Jr.
Leslie K. Mundt	Pierre Poole

SECOND LIEUTENANT

James D. Vinci

GENERAL KELSER RECEIVES AWARD

Brig. Gen. Raymond A. Kelser, chief of the Army Veterinary Corps, has been awarded the twelfth International Veterinary Congress award for distinguished service to veterinary science in the fight against livestock diseases. According to the *Army and Navy Journal* the award was made at the seventy-ninth annual meeting of the American Veterinary Association in Chicago, August 24. General Kelser's long and distinguished career in the Veterinary Corps dates back to World War I.

CONVERT CARRIAGE HOUSE INTO HOSPITAL

The carriage house at the wooded estate of Mrs. Charles S. Cutting in Gladstone, N. J., has been converted into an emergency hospital with a capacity for 250 patients. Already some of the beds are occupied by overflow patients from the Jersey Medical Center and other hospitals in the vicinity. According to the Chicago *Sun* of August 6 the hospital is among Mrs. Cutting's contributions to home defense.

PERSONAL

Dr. Ralph A. Kordenat of Chicago has been appointed vice medical chairman of Cook County for the Procurement and Assignment Service.——Col. Frank W. Weed, Medical Corps, U. S. Army, who has been commanding officer of the Letterman General Hospital, San Francisco, has been nominated by the President for promotion to the rank of brigadier general.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Changes in Health Officers.—Dr. James H. Ashcraft, Reform, has been appointed health officer of Fayette and Pickens counties.——Dr. Alex C. McDougal, Savannah, Tenn., is the new health officer of Marengo County.——Dr. George Sellers Graham Jr., Birmingham, has been placed in charge of the health unit in Green County, and Dr. Juanita L. Bolton, Birmingham, is health officer of St. Clair County.——Dr. Edwin N. Haller, Mobile, has been appointed health officer for DeKalb County.——Dr. Albert S. Dix, Opelika, has been appointed director of communicable disease control of the Mobile city and county health unit, succeeding Dr. Isaac C. Sumner.

Dr. Spies to Continue Research.—Dr. Tom D. Spies, on leave of absence as associate professor of medicine, University of Cincinnati College of Medicine, has accepted the invitation to continue his experiments at the Hillman Hospital, Birmingham, for another year at least, newspapers reported on August 14. The invitation was extended by the Hillman Hospital medical advisory board and the county commission at a joint meeting presided over by Dr. James S. McLester, Birmingham, chairman of the board, and by R. H. Wharton, president of the commission. A large part of Dr. Spies's experimental work in vitamin research was done at the Hillman Hospital and plans are being considered to enlarge his laboratory facilities.

CALIFORNIA

Dr. Chauncey Leake Goes to University of Texas.—Chauncey Leake, Ph.D., since 1928 professor of pharmacology at the University of California Medical School, San Francisco, has been appointed executive vice president and dean of the University of Texas Medical Branch, Galveston, effective about September 15. Dr Leake succeeds Dr. John W. Spies as dean and fills a new position of vice president created by the regents for the purpose of broadening the state's medical education program. In his joint capacity Dr. Leake will also direct the John Sealy Hospital and the College of Nursing. Dr. Leake received his degree of doctor of philosophy from the University of Wisconsin, Madison, in 1923. He was chairman of the Section on Pharmacology and Therapeutics of the American Medical Association in 1936.

INDIANA

State Medical Meeting in French Lick.—The ninety-third annual session of the Indiana State Medical Association will be held at French Lick, September 29-October 31, under the presidency of Dr. Maynard A. Austin, Anderson. Among the out of state speakers will be:

Dr. Norman H. Plummer, New York, Treatment of Pneumonia.
Dr. Harry Edgar Mock, Chicago, Skull Fractures and Brain Injuries.
Dr. R. Arnold Griswold, Louisville, Ky., The Treatment of the Wound in Compound Fractures.
Dr. Lester R. Dragstedt, Chicago, Some Physiologic Principles in Surgery of the Pancreas.
Dr. Albert C. Furstenberg, Ann Arbor, Mich., Disease of the Salivary Glands.
Felix M. Morley, LL.D., Haverford, Pa., What Are Our Objectives?
Dr. Arlie R. Barnes, Rochester, Minn., Heart Disease.

A symposium on the sulfonamides will be held Wednesday. The annual banquet on Wednesday will be addressed by Dr. James E. Paullin, Atlanta, Ga., president-elect of the American Medical Association, on "American Medicine in the Present Emergency." The Woman's Auxiliary to the state association will meet, September 29-30.

KENTUCKY

State Medical Meeting in Louisville.—The annual session of the Kentucky State Medical Association will be held in Louisville, September 28-October 1, under the presidency of Dr. Elmer L. Henderson, Louisville. The oration in surgery will be delivered by Dr. Guthrie Y. Graves, Bowling Green, on "Use of Sulfonamide Drugs in Surgery" and the oration in medicine by Dr. Philip E. Blackerby, Louisville, on "Public Health in Wartime." A public meeting Tuesday evening, September 29, will be addressed by Drs. Irvin Abell, Louisville, on "Relationship of the Public and Physicians in War"; James E. Paullin, Atlanta, Ga., President-Elect of the American Medical Association, "American Medicine in the Present Emergency," and Col. George F. Lull, Washington, D. C., "The Physician Becomes an Army Surgeon." At a public meeting on Wednesday addresses will be given by President Henderson and Dr. E. Murphy Howard, Harlan. Col. Edgar C. Jones, Fort Hayes, Columbus, Ohio, will discuss military affairs and Col. Fred W. Rankin, President of the American Medical Association, Lexington, "Military Medicine." A military symposium will be held Wednesday afternoon. Out of state speakers will include Dr. Clarence D. Selby, Detroit, on "Health in War Industries" and Major Joseph E. Hamilton, Fort Benjamin Harrison, Indianapolis, "Comparative Studies in Local Burn Treatment." Among the Kentucky physicians on the program will be:

Dr. Oren A. Beatty, Captain, U. S. Army, Glasgow, Treatment of Pulmonary Tuberculosis as a Defense Measure.
Drs. Morris Flexner and Max L. Garon, Louisville, Virus Pneumonia.
Dr. Alice D. Chenoweth, Louisville, Diarrheal Diseases in Children with Emphasis on Treatment.
Dr. William Clark Bailey, Harlan, Ambulatory Treatment of Sacro-Iliac Injuries.
Dr. Elmer S. Maxwell, Lexington, The Pathology of Coronary Occlusion.
Dr. Charles B. Stacy, Pineville, Disability Following Back Injuries.

An orthopedic round table will be conducted on Tuesday by Drs. William Barnett Owen, Orville R. Miller, Richard T. Hudson and Robert L. Woodward, all of Louisville.

MICHIGAN

State Medical Meeting.—The Michigan State Medical Society will hold its seventy-fifth annual meeting at the Civic Auditorium in Grand Rapids, September 23-25. Headquarters will be at the Pantlind Hotel. The program has been divided into general assemblies and sectional meetings, and one feature includes ten discussion conferences covering the specialties. There will be a symposium on chemotherapy. A round table on poliomyelitis will be held with Drs. Charles F. McKhann, Ann Arbor, chairman; Don W. Gudakunst, New York; James L. Wilson, Detroit; Sidney D. Kramer, Lansing, and Sister Elizabeth Kenny, Minneapolis, as the speakers. Included among the out of state speakers will be:

Dr. Harvey B. Matthews, Brooklyn, Pelvic Tumors Complicating Pregnancy, Labor and Puerperium.
Dr. Fred W. Rankin, Lexington, Ky., President of the American Medical Association, Cancer of the Rectum.
Dr. Joseph Earle Moore, Baltimore, Venereal Disease in the Armed Forces.
Dr. George H. Gardner, Chicago, Management of the Barren Marriage.
Dr. Philip F. Williams, Philadelphia, Preventive Aspects of Maternal Mortality.
Dr. John A. Toomey, Cleveland, Chemotherapy in Childhood.
Dr. Harrison F. Flippin, Philadelphia, Sulfonamide Therapy in General Practice.
Dr. Russell D. Herrold, Chicago, Modern Management of Infections in the Urinary Tract.
Dr. Roy W. Scott, Cleveland, Clinical Aspects of Arteriosclerosis.
Dr. Irvine H. Page, Indianapolis, The Nature and Experimental Treatment of Hypertension.
Dr. Arthur Hawley Parmelee, Oak Park, Ill., Hemorrhagic Disease of the Newborn.
Dr. Elmer L. Sevringhaus, Madison, Wis., Diagnostic and Therapeutic Problems of Obesity.
Dr. Meyer Wiener, St. Louis, Some Answers to Questions on Ophthalmology of the General Practitioners by Their Patients.
Dr. E. Thompson Bell, Minneapolis, Nephrosis and Nephritis.
Dr. Paul M. Wood, New York, The Relationship of Anesthesiology to Medical Practice.
Dr. John B. Youmans, Nashville, Tenn., The Clinical Importance of Protein in the Diet.
Dr. Willis D. Gatch, Indianapolis, Diagnosis and Treatment of Injuries of the Abdomen.
Dr. William C. Danforth, Evanston, Ill., Selection of Operation in Cases Requiring Hysterectomy.
Dr. Paul A. Chandler, Boston, Some Problems in the Treatment of Glaucoma.
Dr. Eugene F. Traub, New York, The Therapy of Nevi, All Types, and Their Relationships to Skin Malignancies.
Dr. Edward H. Skinner, Kansas City, Mo., Duodenal Ulcer as a Wartime Disease of Citizen and Soldier.
Dr. Harry C. Guess, Buffalo, Evaluation of Rectal Examinations.
Dr. Bronson Crothers, Boston, Prognosis After Injury or Infection of the Nervous System in Childhood.
Dr. George E. Shambaugh Jr., Chicago, Deafness or Impaired Hearing.
Dr. Louis A. Brunsting, Rochester, Minn., Pyogenic Infections of the Skin, Particularly Hidradenitis Suppurative.
Dr. Clifford G. Grulee, Evanston, Newly Born Period as a Public Health Problem.
Dr. Charles B. Puestow, Chicago, Postoperative Gastrointestinal Disturbances.
Dr. James Burns Amberson, Jr., New York, Clinical Interpretation of Early Tuberculosis.

The Woman's Auxiliary to the state medical association will open its program on September 21. Dr. Henry R. Carstens, Detroit, president of the state medical association, resigned on July 15 to go on active duty in the armed forces of the United States. Col. George F. Lull, M. C., U. S. Army, Washington, D. C., will deliver the Biddle Oration, Wednesday evening, on "Résumé of Military Medical Personnel Problems in the Army." Lieut. Col. Samuel F. Seeley, M. C., U. S. Army, Washington, D. C., will be the guest speaker at the Secretaries' Conference on Wednesday.

NEW JERSEY

Twelve Fined for Violating Paralysis Quarantine.—Twelve residents of Seth Boyden Court, a federal housing project in Newark, were fined from $5 to $50 by Chief of Police Magistrate Ernest F. Masini, August 31, for violating the city health department regulations by removing children from their apartments on the property while the place was under quarantine for infantile paralysis. According to the New York *Times*, the complaints were signed by Dr. Charles V. Craster, health officer of Newark. In fining three of the offenders $50, Judge Masini said that the differences in the penalties were based on the manner of removing children and their control with regard to public health laws. All the children involved have since been returned to the quarantined premises, it was stated. The seventh case of infantile paralysis at the project was reported on August 31 by Dr. Craster. Since July 1 there have been 17 cases in the city, 1 resulting fatally.

Sentence Physician Accused of Altering Fingerprints.—Dr. Leopold W. A. Brandenberg, Union City, was given the maximum sentence of three years' imprisonment on August 20 for aiding, giving comfort and concealing a fugitive from prosecution. According to the Yonkers *Herald-Statesman*, Dr. Brandenberg, accused of performing an operation in an attempt to change the fingerprints of Robert (Roscoe) James Pitts, was convicted on August 14 by a jury of eight men and four women. It was also reported that at his trial the physician acknowledged that in May 1941 he cut away the skin of the finger tips of Pitts, a convicted burglar sought by North Carolina police for questioning in connection with two burglaries, and bound his hands to his chest to form new fingerprints. He testified, however, that he did not know then that Pitts, now serving a sixteen to twenty year term for burglary in North Carolina, was an object of a police search. Pitts, who was brought from the North Carolina Prison to testify against Dr. Brandenberg, had served terms at Alcatraz and Atlanta prisons, it was stated.

NEW MEXICO

State Medical Election.—Dr. Joseph E. J. Harris, Albuquerque, was chosen president-elect of the New Mexico Medical Society at its annual meeting in June and Dr. Wallace P. Martin, Clovis, was inducted into the presidency. Dr. Leo B. Cohenour, Albuquerque, was relected secretary. The 1943 session will be held at Albuquerque, May 19-21.

NEW YORK

District Meeting.—The thirty-sixth annual meeting of the Sixth District Branch of the Medical Society of the State of New York will be held in Endicott, September 16. At the morning session Dr. Ernst P. Boas, New York, will discuss "Treatment of the Aged" and Leonard A. Maynard, Ph.D., Ithaca, "Nutrition: Survey of Recent Findings and Discussion of General Problems." A symposium on medical indemnity will be conducted in the afternoon by Drs. Frederick M. Miller Jr., Utica; Harvey P. Hoffman, Buffalo, and Frederic E. Elliott, Brooklyn.

General Electric Builds High Voltage Machine.—A machine is under construction at the General Electric Research Laboratory, Schenectady, which will speed electrons to energies of 100,000,000 volts and which will produce x-rays of the same power. The machine, which will be housed in a special building, is called an "induction electron accelerator." Ernest E. Charlton, Ph.D., head of the x-ray section of the General Electric Laboratory, and W. F. Westendorp have been responsible for the design and construction of the new accelerator. Its principal part will be a huge electromagnet weighing 125 tons.

Outbreak of Gastroenteritis.—An outbreak of gastroenteritis occurred during the week of June 29 among residents of two neighboring upstate villages and one death occurred among the 130 persons involved. According to *Health News*, both villages used untreated water from a common source and distribution system privately owned and operated. Following a break in the water main, bacteria of the coliform group were found in water samples collected. Inquiry at the first residence along the water line as it enters the village disclosed that the water pressure was not constant and at times was rather low. It was also found that the septic tank at the second residence overflowed into a small marshy area to the rear of the house. In nearly all the homes along the water main one or more persons had been affected.

New York City

Hospital News.—The New York Hospital has opened a pavilion of twenty-nine beds for the study and treatment of neurologic cases, both medical and surgical. Dr. Harold G. Wolff is the neurologist in charge, and neurosurgery is under the direction of Dr. Bronson S. Ray.

Fund in Memory of Dr. Norris.—The New York Academy of Medicine will receive about $170,796 from the residuary estate of Miss Fanny Norris to establish a fund in memory of her brother, the late Dr. Charles Norris, formerly chief medical examiner of the city, who died Sept. 11, 1935.

Charles Hendee Smith Retires.—On September 1 Dr. Charles Hendee Smith retired as professor of pediatrics at the New York University College of Medicine. Dr. Smith was a member of the staff of Columbia University College of Physicians and Surgeons from 1903 to 1930, when he went to New York College.

Commander Wells Chosen President-Elect of the American Dental Association.—Comdr. C. Raymond Wells, D.D.S., Brooklyn, chief dental officer, medical division, Selective Service System, Washington, D. C., was chosen president-elect of the American Dental Association at the meeting of its house of delegates in St. Louis, August 26. Dr. Wells graduated at Northwestern University Dental School, Chicago, in 1918.

Director of Division of Handicapped Children.—Dr. George S. Frauenberger, director of clinics of the Children's Hospital of Philadelphia, has been appointed chief of the division of physically handicapped children in the bureau of child hygiene of the department of health. He succeeds Dr. Lyman C. Duryea, who is serving with the armed forces. Dr. Frauenberger graduated at the University of Michigan Medical School, Ann Arbor, in 1933. The division of physically handicapped children was first established in 1940 as the division of crippled children. It has carried the current name since July 1, when the Cardiac Classification Service was included. Its headquarters are located at the lower east side health center, 341 East Twenty-Fifth Street, Manhattan. The funds for financing the work have been provided by the city department of health from appropriations secured under the Social Security Act through the children's bureau of the United States Department of Labor.

NORTH CAROLINA

University News.—William A. Wolff, Ph.D., has been named as associate professor of biochemistry in charge of chemical pathology at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, effective July 1, and Dr. Robert B. Lawson, Chapel Hill, has been named assistant professor of pediatrics. The establishment of the Nathalie Gray Bernard Lectureship was announced at a meeting of the student body on June 29. Voluntary contributions will make up the fund, which will finance the visit each year of a lecturer to the school.

Personal.—Dr. Julian W. Ashby has resigned as superintendent of the State Hospital, Raleigh, having recently become eligible for retirement under the state system. Dr. John F. Owen, Raleigh, formerly assistant, has been named acting superintendent.——Dr. Frank K. Harder, assistant health commissioner of Cincinnati, has been appointed head of the Greensboro Health Department, effective August 3.——Dr. Walter E. Wilkins, Raleigh, director of the division of school health service for the state board of health, has been made consultant in nutrition to the Office of Defense Health and Welfare Services in Washington.——Dr. Roy H. Long, assistant superintendent and for more than twenty years a member of the staff of the state hospital at Morganton, resigned, August 1, on account of ill health.

OKLAHOMA

Physicians to Be Paid for Examinations.—Beginning on August 15, physicians will be paid a fee by the state public welfare commission for the examination of applicants seeking assistance from the aid to dependent children's fund when such applicants are applying for reason of physical or mental incapacity, according to the state medical journal. The program calls for the payment of a $3 fee for original examinations and $2 for subsequent reexaminations. Laboratory work will also be paid for when requested by the medical advisory committee. Applicants will use their family physicians or one of their own choice. The recommendations for this plan came from the medical advisory committee and were adopted by the commission to secure more complete examinations of the appli-

cants by physicians whereby, in return, a more definite decision could be obtained as to whether the applicant was entitled to assistance. It is believed that the new examination form and the payment of an examination fee will save thousands of dollars for the taxpayers of the state. Members of the medical advisory committee are Drs. Charles R. Rountree, Oklahoma City; John Walker Morledge, Oklahoma City; Alfred R. Sugg, Ada; C. Gallagher, Oklahoma City; Robert M. Shepard, Tulsa, and Moorman P. Prosser, Norman.

PENNSYLVANIA

State Medical Meeting in Pittsburgh.—The ninety-second annual session of the Medical Society of the State of Pennsylvania will be held at the Hotel William Penn, Pittsburgh, October 5-8, under the presidency of Dr. Lewis T. Buckman, Wilkes-Barre. The program has been divided into three morning general assemblies consisting of panel discussions. Wednesday's meeting will be devoted to discussions of coma and shock and Thursday's to intravenous therapy. One hundred and seven speakers will participate in eight scientific sessions covering the specialties. Among the out of state speakers will be:

Col. George R. Callender, M. C., U. S. Army, Washington, D. C., Wound Ballistics.
Dr. Alan C. Woods, Baltimore, Influence of Sensitivity and Immunity on Ocular Tuberculosis.
Dr. Charles B. Huggins, Chicago, Endocrine Relationships in Carcinoma of the Prostate.
Dr. Lloyd D. Felton, Washington, D. C., Possibility of the Prophylaxis of Pneumonia.
Dr. Henry C. Marble, Boston, Treatment of the Injured Hand.
Dr. Philip Levine, Newark, N. J., Erythroblastosis in Reference to Abortions and Neonatal Deaths.
Dr. L. Emmett Holt Jr., Baltimore, The B Vitamins and Their Significance for the Pediatricians.
Dr. C. Stewart Nash, Rochester, N. Y., Functional Diseases of the Nose.
Dr. John H. Foulger, Wilmington, Del., Important Factors in Industrial Preventive Medicine.
Dr. Thomas E. Jones, Cleveland, Diagnosis and Surgical Aspects of Carcinoma of the Colon.
Dr. Joe V. Meigs, Boston, Ovarian Tumors.
Dr. William E. Ladd, Boston, The Time of Choice and Operation of Choice in Elective Surgery of Infancy and Childhood.
Dr. Adrien H. Verbrugghen, Chicago, Coma and Shock.
Dr. Russell L. Haden, Cleveland, Intravenous Therapy.
Dr. Harry M. Robinson, Baltimore, Resumption of Antisyphilitic Treatment After Postarsphenamine Reactions.

Philadelphia

Committee Named to Conserve Physicians' Activities.—A coordinating committee has been formed of representatives of the College of Physicians of Philadelphia and the Philadelphia County Medical Society to correlate the scientific activities of both organizations. According to *Philadelphia Medicine,* it is hoped that this idea may be followed by other organizations in order that the number of medical meetings may be reduced and the efforts of the physicians remaining in civilian activity extended where they will do the greatest amount of good.

VIRGINIA

Dr. Royster Retires as Professor.—Dr. Lawrence T. Royster has resigned as head of the department of pediatrics at the University of Virginia Department of Medicine, Charlottesville. Dr. Royster graduated at the university in 1897 and has been in charge of the department of pediatrics since 1923. He was secretary of the section on pediatrics of the American Medical Association from 1910 to 1911 and chairman, 1914-1915.

WEST VIRGINIA

Resolution About Contraceptive Information.—The West Virginia State Medical Association adopted a resolution on July 14 which favored the dissemination of birth control information by physicians. The resolution reads as follows:

WHEREAS, The maternal death rate in the state of West Virginia has been and still is one of the highest in the United States; therefore, be it
Resolved, That the physicians of the state of West Virginia and the state department of health of the state of West Virginia be requested to impart the necessary contraceptive information to those women whose health is such that they should not bear children and to those mothers whose health has been impaired by excessive childbirth.

Auxiliary Compiles Book on Past Presidents.—The Woman's Auxiliary to the West Virginia State Medical Association published in July a book entitled "Past Presidents of the West Virginia State Medical Association 1867-1942." The project was begun four years ago. The book opens with a chapter on the establishment in 1867 of the state medical society and a review of its history and contains pictures and backgrounds. Fifteen of the past presidents were charter members of the state medical association. There are twenty-three living past presidents of the association.

GENERAL

Directory of Industrial Hygiene Personnel.—A directory has been issued by the division of industrial hygiene, National Institute of Health, U. S. Public Health Service, Bethesda, Md., showing professional personnel of state and local hygiene units. The directory gives the address, name and title of industrial physicians, engineers, chemists, bacteriologists, inspectors and nurses employed in the several states.

Fire Prevention Week.—The President has issued a proclamation setting aside the week of October 4-10 as fire prevention week. All agencies throughout the country are asked to cooperate in attacking and eliminating fire hazards in an effort to reduce loss of life and property from blaze and smoke in every state in the union. The Office of Civilian Defense has been directed to initiate programs for emphasizing the importance of attaining these objectives.

Automobile Identification Plates for Use in Blackouts.—The Medical and Surgical Relief Committee of America announces new automobile identification plates for physicians during blackouts. They are made of washable plastic board with the letters M.D. conspicuously imprinted in white against a black background. The committee's emblem, a modified caduceus, is also imprinted on the plate. The price is $1.50. The new plates may be obtained from the Medical and Surgical Relief Committee of America, 420 Lexington Avenue, New York. Any small profit accruing from the sales of these plates will be used to purchase instruments and medical supplies for areas which cannot obtain them otherwise.

Association of Science Writers.—Watson Davis, director, Science Service, Washington, D. C., was chosen president of the National Association of Science Writers at its recent annual meeting in Atlantic City and Stephen McDonough, science writer, Associated Press, Washington, D. C., was reelected secretary-treasurer. Rennie Taylor, Associated Press, San Francisco; James Leary, Chicago *Daily News,* Chicago, and Jay Edgerton, Minneapolis *Journal,* Minneapolis, were elected to active membership. Sidney S. Negus, Ph.D., head of the department of chemistry, Medical College of Virginia, Richmond, was named to honorary membership, and Lawrence Salter of the American Medical Association, Chicago, to associate membership. On August 19 announcement was made of the election to honorary membership of Hon. Henry A. Wallace, vice president of the United States, in recognition of his "many contributions to the popularization of science and particularly for his research contributions in the field of genetics."

Motion Picture on Immunization Available.—The professional department of Lederle Laboratories, Inc., 30 Rockefeller Plaza, New York, announces the release of a film "Immunization Against Infectious Diseases," prepared by the department of pediatrics and communicable diseases, University of Michigan Medical School, with the approval of the American Academy of Pediatrics and its Committee on Immunization Procedures. The picture, supervised by Drs. Charles F. McKhann and Harry A. Towsley, Ann Arbor, is in technicolor and shows patients with typical diagnostic signs, maps showing geographic distribution, and procedures outlining protection against diphtheria, scarlet fever, tetanus, pertussis, typhoid fever, cholera, plague, smallpox, rabies, encephalomyelitis, yellow fever, Rocky Mountain spotted fever and typhus fever, and measles; also the proper time of immunization against these diseases. The picture is available for bookings without charge to medical societies, public health departments, hospitals and medical and nursing schools.

Seminar in Legal Medicine.—A medicolegal conference under the auspices of the Massachusetts Medico-Legal Society and the department of legal medicine, Harvard Medical School, Boston, will be held at the Mallory Institute of Pathology, Boston City Hospital, September 30. The conference will be open to physicians, lawyers and police, and subjects will include the medical examiner and the public health department, establishment of time of death, examination of burned, mutilated and putrefied bodies, interpretation of laboratory reports of the carbon monoxide and alcohol content of postmortem materials, examination of bodies recovered from water, hit and run accidents, collection and preservation of material for toxicologic analysis and legal considerations incident to the performance of autopsies. There will also be a demonstration of the medicolegal autopsy. Dr. William H. Watters, Boston, who will open the conference, is chairman of the committee. This conference will precede a seminar in legal medicine under the auspices of Courses for Graduates, Harvard Medical School, which will consist in studies of many postmortem investigations made from the medicolegal standpoint and the various procedures associated with possible crime detection.

CANADA

Personal.—Dr. James B. Collip, professor and head of the department of biochemistry, McGill University Faculty of Medicine, Montreal, Que., was elected president of the Royal Society of Canada on May 30.——Dr. George Dana Porter, first director of student health service at the University of Toronto, was presented with a plaque at a dinner given in his honor, May 21, in recognition of his many years' service to the university. Dr. Porter was director of the student health service from the time of its inception in 1921 to his retirement in 1941. He was also recently elected an honorary life member of the Canadian Public Health Association.

Special Society Meetings.—The Canadian Public Health Association held its thirty-first annual meeting at the Royal York Hotel, Toronto, June 1-3, in conjoint session with the twenty-eighth annual conference of the Ontario Health Officers Association. Henry F. Vaughan, Dr.P.H., dean of the School of Public Health of the University of Michigan, Ann Arbor, was the guest speaker at the annual banquet.——The forty-second annual meeting of the Canadian Tuberculosis Association was held in conjunction with the Ontario Laënnec Society at the Royal Connaught Hotel, Hamilton, June 5-6. At the annual dinner Dr. Norman S. Shenstone, Toronto, discussed "Pneumonectomy."

LATIN AMERICA

School for Handicapped Children.—A special school for children whose mental or physical handicaps prevent their education with normal children is to be established in Panama under a presidential decree promulgated on May 15 through the Ministry of Education. The decree also provides for the formation of a committee for child study, which will function under the technical department of the ministry of education. According to the *Child*, the committee is to be composed of "an educator with a university degree in psychiatry, a psychiatrist, an educator with experience in the teaching of mentally deficient children and a social worker." It is to determine the number of mentally and physically handicapped children in Panama and to develop special courses of study for the school for handicapped children which will best assure the assimilation of these children in the cultural and economic life of the nation.

FOREIGN

Personal.—Dr. Eugene Chan, Chengtu, has been appointed visiting professor of ophthalmology at the National College of Medicine of Shanghai, China. Dr. Chan, who was once a member of the Wilmer Ophthalmological Institute of Johns Hopkins University, Baltimore, has during the last few years held the chair in ophthalmology at the West China Union University School of Medicine and has been head of the department of ophthalmology of the Chengtu Eye, Ear, Nose and Throat Hospital.

Institute of Social Medicine Endowed.—The Nuffield Provincial Hospitals Trust will devote £10,000 a year for ten years to the creation at the University of Oxford of a university professorship of social medicine and the foundation of an institute in which the professor will work, according to *Science*. The purposes of the institute are:

To investigate the influence of social, genetic, environmental and domestic factors on the incidence of human disease and disability.

To seek and promote measures, other than those usually employed in the practice of remedial medicine, for the protection of the individual and of the community against such forces as interfere with the full development and maintenance of man's mental and physical capacity.

If required by the university to do so, to make provision in the institute for the instruction in social medicine of students and practitioners of medicine approved by the board of the faculty of medicine in the University of Oxford.

The entire project has been carried out with the approval of Lord Nuffield, who six years ago devoted two million pounds to the endowment of medical research in the University of Oxford. In December 1939 he endowed the Nuffield Provincial Hospitals Trust, of which William M. Goodenough, chairman of the trust connected with medical endowment at Oxford University, is the chairman. This trust is empowered to spend money on a wide range of purposes which can be of benefit to the hospital services.

CORRECTION

St. Luke's Hospital Approved for Surgical Residencies.—In the Educational Number of THE JOURNAL, August 15, page 1341, St. Luke's Hospital, 421 West 113th Street, New York City, should have been listed as approved for residencies in surgery. Dr. William F. MacFee is chief of the Surgical Service. Inpatients treated 3,450, outpatient visits 27,236, deaths 102, autopsies 52, number of residents 2, assistant residents 8.

SPECIAL NEWS

(THIS NEWS WAS ASSEMBLED ESPECIALLY FOR USE IN THE JOURNAL)

Health Under Hitler.—According to the *Svenska Dagbladet*, Stockholm, of July 6, thousands of wounded Germans are being transported to Norway and the Norwegians turned out of hospitals to make room for them. Practically every hospital in the interior is requisitioned for the Germans, and the Norwegian patients are sent to school buildings which have been prepared for them. It was estimated that the transfer of patients would take until the end of July, during which period the hospitals will hardly be able to function. The press announces that civilian sick cannot be accepted for hospital treatment before the end of July, since the German defense forces have requisitioned the hospitals. According to the *Kjukan Dagblad* of July 1, after the German wehrmacht's requisitioning of Tolmark County Hospital it was decided that the patients must move to Soere Agricultural School, Ulofoss.

The *Neues Wiener Tagblatt* of July 4 describes the journey of a Danube steamer from Vienna to Durnstein with a party of wounded soldiers. The boat, which had been hired by the Wehrmachtskommandantur Wien, Verwundetenbetreuung for July and August, will make the trip three times a week, carrying chiefly seriously wounded men. After two hours at Durnstein the boat returns to Vienna. The organization for the care of the wounded, in which Lieutenant General Stumpfl takes particular interest, deals with 100,000 wounded soldiers a month. The first lot of 500 soldiers was accompanied by doctors, nurses, a band, a quartet and singers. There were soldiers from all fronts, "from Lapland to Africa."

Otto Mattson, an expert of the Lund Anatomic Institute, stated in an interview, according to the *Social Demokraten* of August 6, that certain scientific instruments, such as binocular microscopes, barometers, thermometers and double polished glass, are unobtainable in Germany. High class cameras are difficult to obtain. It is not easy to obtain ordinary glass, which, however, is still being manufactured.

According to *Novo Vreme*, Belgrade, of June 18, owing to the shortage of pharmaceutic products and to prevent speculation, the sales of these articles are controlled. Castor oil, iodine, petrolatum and quinine are obtainable in future only on a doctor's prescription.

Children's stockings for months have been unobtainable in Finland, according to *Helsingin Sanomat* of August 4 and shoes are seldom seen. It is said to be impossible to find even the most modest clothes for children, although adults can still buy clothes.

According to the *National Zeitung*, Berne, July 16, reports are that German soldiers fighting in Russia are now being smeared with a preparation to protect them against lice. The preventive is the outcome of experiments made by Hitler's doctor, Professor Morell, who found that lice placed on horses fell off dead. He discovered that the reason was horse perspiration. The anti-lice mixture, which is also said to possess frost protective qualities, has reduced the number of cases of typhus among the German troops, the paper adds.

According to the *Deutsche Wissenschaft, Erziehung und Volksbildung* of June 20, the minister of the interior has advised all volksgenossen who for professional or other reasons pay a visit to occupied countries, the government general or foreign countries, to have themselves vaccinated against typhus and paratyphus. Those who are going to visit any of the occupied eastern areas or the government general are advised also to be vaccinated against spotted typhus. The vaccine is obtainable from the Robert Koch Institute and from the Behring factories in Marburg a. d. Lahn.

According to the Brussels radio of August 1, the Ministry of Economic Affairs warned against the danger of gas poisoning, since the quality of gas for lighting has deteriorated and contains a higher amount of "coal oxide." It is more necessary than ever, the announcer warned, to be sure that no gas escapes anywhere.

Italia Germania Vittoria is the name of the twenty-second child recently born to an Italian woman aged 46, who thus became the woman with the most children in Italy, according to the Berlin correspondent of the *Svenska Dagbladet* of August 1. According to the *Nieuwe Rotterdamsche Courant* of May 18, at the "Deutsche Haus" at Rotterdam, 44 mothers of large families were present at the celebration of the German mothers' day, organized by the South Holland kring of the NSDAP. The meeting was attended by representatives of the state, army and party. Oberdienstleiter Schmidt presented military crosses to the mothers.

Hauptsturmführer Emil Petersen of Usseroed, now employed in an SS hospital in Vienna, recently visited Denmark, where he exhorted the Danish doctors and nurses to go to Germany, where the demand for their service is great, according to *Faederlandet* of August 3.

The total population of Belgium has fallen from 8,294,674 to 8,257,392 during the year 1941, a drop of 37,282, according to the *Nachrichten für den Aussenhandel* of August 5. There are 23,725 fewer men and 13,557 fewer women than in 1940; there were 98,417 births and 118,670 deaths recorded. The war has accentuated the falling birth rate of recent years. The Walloon provinces are responsible for the decline, as in the Flemish provinces the number of births exceeds the deaths now as before the war. There have been other changes in the population. As a result of immigration and emigration (3,236 people have entered the country, 13,775 have left it) the number of inhabitants decreased by 10,539. This decrease can largely be accounted for by the number of foreign workmen (Poles, Italians, Yugoslavs) who have returned to their country. The four main Flemish provinces lost a total of 12,759 inhabitants during 1941.

According to the *Het Nationale Dagblad,* Utrecht, of June 13, Dr. K. Keijer, leader of the medical front, writes as follows concerning the medical care of the nation's health: "Our social medical science has in the past always been divided by competing organizations . . . by associations such as the White Cross, Green Cross and Yellow Cross, and much money has been wasted. Our health insurance organizations have also been at variance. All these characteristics of a liberal period must be removed. The executive work in the field of public health must be centralized in a service instituted by the government. . . . The head of the medical service must himself employ the public health officials and dismiss them (after consultation with the medical front) because, in the last resort, he alone is responsible to the leader and the government. Moreover, it is his duty to see to it that our nation is adequately represented in the international field of public health and actively collaborates in any events or measures relating to public health which may be undertaken by other nations, either separately or together.

"The new public health service will apply more to healthy people than to sick ones. An increase of the healthy and valuable section of the population is more important than the maintenance of the ailing ones.

"The physical training of the young lays the foundations of the nation's health. Boys of 18 years of age should be at least 90 per cent fit for military or labor service, instead of 70 per cent unfit as is the case at present.

"Marriages among the young should be encouraged, which makes it all the more important to look after the purity of the race. The heredity of those who wish to marry will be thoroughly examined and taken into consideration before consent is given to marriage. The undesirable mingling of races must come to an end. And, in the first place, marriages with Jews and alien races must be prohibited."

According to DNB of July 11, expectant mothers require a certificate in order to obtain additional food and supplies. This certificate can be issued by any doctor or midwife. To relieve doctors it is urgently requested that women have their pregnancy certificates issued by midwives.

The reich minister of the interior has decreed, according to NDZ of July 6, that compensation will be paid to health resorts, seaside resorts and spas for the loss of the taxe de sejour (kurtaxe) if more than 10 per cent of the available accommodation is required for patients belonging to the armed forces. Accommodation required by the child evacuation scheme, the NSV or the armed forces for other than hospital cases must not be counted, although exempt from the kurtaxe. This ruling takes effect retrospectively as from April 1, 1942. The rules regarding the waiving or reduction of the kurtaxe for members of the armed forces remain unchanged.

According to the Frankfort *Zeitung* of July 2 a spa in southwestern Germany, which may be regarded as an example for many others, was mainly used by war wounded during the first year of the war, and in the second year the number of reservations by private patients had to be restricted. All large hotels are used as war hospitals, and part of the remaining accommodation is reserved for wives of soldiers. The organization Mother and Child had to be referred to less overcrowded places, as so much accommodation is needed for the war hospitals in the town. Even so there is little accommodation to be had; the duration of each patient's stay is limited, and admittance is made conditional on a doctor's certificate. In hotels the lack of domestic and kitchen staff is made good by the employment of prisoners of war. Soldiers are everywhere and give the impression of a garrison town. Food is still sufficient. All excursions have to be made on foot, as there are no busses running.

At a ceremony in the Gau capital, Bayreuth, Gauleiter Wachtler inaugurated the Winifred Wagner House in the presence of Frau Winifred Wagner, the leader of the NSV, Oberbefehlsleiter Hilgenfeldt and the reich health leader, Dr. Conti. According to DNB of July 12, this house is not an ordinary hospital but an immense scheme serving the future of the German people; it is the crowning achievement of the work for improving public health which was started in 1933. Gauleiter Wachtler declared that after the war the Winifred Wagner House is to become the center of the battle against infant mortality. Oberbefehlsleiter Hilgenfeldt then handed over the House, which had been sponsored by the welfare scheme Mother and Child of the NSV, to the gauleiter. "This house," he declared, "which was built on the führer's own orders, not only will be a hospital but will be above all at the service of mother and child, and will be used for the training of doctors, nurses and all those who collaborate in the welfare scheme Mother and Child. Dr. Conti described the Winifred Wagner House as the first large scale National Socialist hospital in the reich, as opposed to the conception of the hospital of the past.

According to NDZ of July 9, party and state are conducting a systematic fight against infant mortality also in the Upper Rhine districts of Baden and Alsace. Prof. Dr. Hofmeier, who has been called from the Reich Institute for Combating Infant and Child Mortality, Berlin, to the chair for child therapeutics and as head of the children's clinic at the University of Strasbourg, stated in an interview with NDZ's Strasbourg correspondent that in 1913, out of a total of 1,000 children in Baden, 138 died before their first birthday, that is, 13.8 per cent, but in 1936 in Mannheim, the largest city in Baden, only 296 children out of 4,731 died, that is, 8.2 per cent. The improvement is even greater in some other towns and shows that the reich health leaders' aim to reduce infant mortality to 4 per cent is susceptible of realization.

Good results have followed the establishing of mother's milk centers in Heidelberg, Freiburg and Karlsruhe, which make the surplus milk of nursing mothers available to sickly babies. In one year over 300 infants that seemed beyond saving were kept alive in Karlsruhe through the distribution of 4,000 liters of mother's milk. However, the fight against infant mortality must not be confined to the infant but must begin with the adolescent girl; thus women are growing up everywhere who not only understand the nursing of infants but also are experienced in domestic work.

According to the *Kölnische Zeitung* of July 2 the law for the protection of motherhood applies only to women of German nationality—except Jewesses—and to women of German blood. It applies also to women who have been specially designated by the reichsführer SS in his capacity as Reichskommissar für die festigung Deutschen Volkstums. All other women who are working in German factories and offices (including Poles, Jewesses and Gipsies) are entitled to only a certain minimum protection. They may refuse to continue work if they can prove that they are likely to be confined within two weeks, and they must not be employed for the first six weeks after their confinement. The further protective periods ordered by the law do not apply to these mothers.

In a broadcast Dr. Grasset said, according to Havas of July 18, he had been entrusted by Pétain and Laval with the direction of the department of health. This was a heavy burden, and he was addressing this appeal to the practicing doctors of France and the empire. A complete reorganization of the profession had become necessary. Doctors could give the community a greater and far more efficient help than has been the case in the past. In the near future Dr. Grasset would provide them with the framework of a corporation, established according to the marshal's ideas, which would release them from unnecessary formalities, entrust them with new responsibilities and embody them in the élite which the régime was trying to build up. Dr. Grasset had submitted to the marshal a law to safeguard the legitimate rights of all physicians still in Germany. Their release had not yet reached the desired extent. Their families should, however, know that, together with the military health services, they were applying all their efforts to make sure that, after their return, fraternal solidarity would make up to them for the bitterness of a long exile.

Seventy cases of poisoning from drinking methylated spirits recently occurred in Berlin, according to the Stockholm *Tidningen* of August 6; some of the victims died and some were blinded. Ordinary alcohol, it is said, is practically unobtainable in Germany.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 1, 1942.

Report of Medical Planning Committee of British Medical Association

Medical service in this country has grown up in a piecemeal fashion, in which private practice, philanthropy and government action have played their separate parts without any coordination. With the passage of the insurance acts government control of medical practice was greatly increased. It is generally agreed that the present system, or want of system, cannot last, but there is much difference of opinion as to its reform. As in all our institutions, the war seems likely to accelerate change. A medical planning commission established by the British Medical Association, with the cooperation of medical corporations, was appointed in August 1940 to study wartime developments and their effect on the country's medical services. The commission appointed five subject committees to deal respectively with general practice, special practice, public health, hospitals and teaching hospitals, and a sixth to coordinate the work of those committees. It adopted for the purpose of its discussion a broad definition of the objects of medical service: (1) to provide a system to achieve positive health, the prevention of disease and the relief of sickness; (2) to render available to every individual all necessary medical services, both general and specialist, and both domestic and institutional.

The commission has now published an elaborate report. It points out that the days when a doctor armed only with his stethoscope and his drugs could offer a fairly complete medical service are gone. He cannot now be all sufficient. He must have at his disposal modern facilities for diagnosis and treatment, which often cannot be provided by a private individual or installed in a private surgery. He must also have easy and convenient access to consultant and specialist opinion, whether at the hospital or elsewhere, and he must have means for real collaboration with consultants. Such facilities are now inadequate. There must also be collaboration among local practitioners, for their different interests and experiences can be of value to one another. There are insufficient facilities for regular postgraduate study and the development of special scientific and clinical interest. The pressure of work, which is in part due to bad distribution, often leads to excessive hours of duty and insufficient holidays.

Another defect is the existence side by side of two essentially different hospital systems, the individualistic voluntary hospital (so called because supported by voluntary subscription from the philanthropic) staffed by practitioners who in most cases receive no direct remuneration for their services, and the municipal hospitals under local government authorities and staffed by practitioners who are paid officers. Many of the differences between the two systems are fundamental, such as the conditions of admission of patients and the opportunities for professional careers. Their existence is detrimental to the development of an efficient hospital service.

While there is general agreement as to objects of reform, there is difference of opinion as to the way to achieve them. Some maintain that the existing system can be so rearranged as to provide a satisfactory service. Others consider that the ideals cannot be achieved without such a radical change as would replace private practitioners by whole time salaried government officials. A third group favors a combination of private practice and government service. There are, however, some fundamental principles which the commission lays down. The organization of the national health services should be based on the family as the normal unit and on the family doctor as the normal medical attendant. The first essential is not institutional but personal service, such as can be rendered by the family doctor who has the continuous care of the health of the family. To him they will turn for advice and help. He will give them such service as he can render personally and will see that they obtain full advantage of all the further auxiliary services that may otherwise be provided.

The present uncoordinated hospital services should give way to a unified hospital system. Some reformers demand a complete state controlled hospital service, which presumably would absorb the great voluntary hospitals. Others advocate a national hospital corporation to take over the voluntary and municipal hospitals and organize them into a single system. But the voluntary hospitals embody traditions which should not be allowed to disappear. At the same time the potentialities of the municipal hospitals are great and should be developed. The general view is that from the two systems there should be evolved one coordinated system embodying the best features of the two. The hospital services, the personal health services and the general practitioner services should be closely linked. The organization of all hospital services on a regional basis is generally favored.

PROPOSALS

A central authority should be established for all civilian medical and auxiliary services. This may be a government department or a corporate body formed under government auspices. It should have a medical practitioner as its chief officer and be responsible for the formulation and administration of a national health policy and the terms and conditions of service. The work of local health authorities would be purely administrative. They would control areas with a population of not usually less than half a million. Each would have an advisory medical committee. There is also a scheme for model health centers at which practitioners would attend at certain hours. There would be provided medical equipment and a secretarial and dispensing staff. This would be much more economical than the present system, in which each practitioner has to supply such requisites at his own premises.

BRAZIL

(From Our Regular Correspondent)

Aug. 12, 1942.

Endemic Goiter in the State of São Paulo

Dr. A. Arruda Sampaio has published the results of an extensive study of endemic goiter in preschool and school children of different areas of the state of São Paulo. The areas studied are separated into four groups: the Atlantic littoral, the low valley of the Paraiba River, the uplands of the interior (average altitude 2,000 feet) and the regions of the Mantiqueira Sierra (average altitude 5,000 feet). About 11,000 children have been examined, showing a wide variation in the incidence of the disease (5 to 60 per cent). As the littoral regions are generally considered practically free from endemic goiter, and as in the Atlantic littoral of the state of São Paulo the incidence of the disease was low (5 to 10 per cent) and the thyroid hyperplasia always mild, the author considers this morbidity rate as corresponding merely to sporadic goiter, and the morbidity rate over 10 per cent and up to 15 per cent as corresponding to a low incidence of endemic goiter. In the endemic areas, goiter is found even in the preschool age, and the incidence increases with age, being 20 per cent higher in the age group 8 to 10 years than the corresponding group of non-endemic areas. In the areas of sporadic goiter and of low and medium incidence of endemic goiter, the prevalence is higher in girls than in boys, as usual, in the ratio of 2 or 3 to 1, but this predominance is less pronounced in the areas of high incidence. Nevertheless the volume of the tumor is generally greater in the girls.

Pan American Code for the Prevention of Blindness

The first Brazilian Congress for the Prevention of Blindness, held in Rio de Janeiro in July, prepared the draft for a Pan American code for the prevention of blindness, to be submitted for approval to the various nations of the Western Hemisphere. This code suggests the creation, in each nation, of a national council for the prevention of blindness, which will be in charge of the administration of (1) prevention of the contagious diseases of the eye (mainly ophthalmia neonatorum and trachoma), (2) prevention of congenital and hereditary causes of blindness (congenital syphilis and hereditary diseases and malformations of the eye), (3) prevention of occupational injuries of the eye (protection of the workmen, evaluation of the degree of disability, compensation laws), (4) ophthalmologic inspection of school children, (5) eyesight conservation classes, (6) legislation to foster and control the correct illumination of school rooms and workshops, (7) legislation to control the work of the optometrists and commerce in lenses and (8) census taking of the blind and other persons affected with eye disabilities. Through the foreign department of Brazil a copy of the suggested code will be sent within a short time to all the nations of the Western Hemisphere.

Pharmacodynamics of Coffee

Coffee is the main agricultural product of Brazil, and every phase of its utilization is now being studied. Several papers have been lately published in Brazilian medical periodicals about the pharmacodynamics of coffee. Dr. J. M. Loureiro studied the action of coffee on the muscular tonus and reflex activity of diabetic patients. All the patients included in the study were in perfect metabolic equilibrium. The cutaneous and the deep reflexes, as well as the accommodation reaction, were studied before and after the ingestion of 150 cc. of an infusion of strong coffee. The conclusion of the author is that coffee slightly increases the neuromuscular tonicity. Using coffee as an excitant of the biliary secretion, through duodenal intubation, Dr. Cleto S. Velloso ascertained that coffee does not modify the flow of bile and therefore concluded that it is not necessary to proscribe the use of this beverage to those with biliary and hepatic disturbances. Dr. Octavio Dreux studied the action of coffee on the blood level of uric acid. After many photometric measurements he concluded that the ingestion of 20 Gm. of ground coffee in 200 cc. of water, during fasting, produces a clear uricemic wave that lasts from two to three hours, when the normal level of the uric acid is reestablished.

Yellow Fever in Brazil

A recent publication of the Brazilian Federal Public Health Service gives good news about the situation of jungle yellow fever. Whereas 217 cases of the disease were discovered in 1937, 263 in 1938, 130 in 1939, 172 in 1940 and 19 in 1941, only 10 cases have been reported during the current year up to July 31. Since 1937, well over 2 million people have been immunized against the disease with vaccine prepared at the Rockefeller Laboratory of this city.

A New Treatment for Osteomyelitis

Dr. Francisco Finocchiaro of São Paulo uses the Durante-Roentgen or physiochemicotherapeutic method in the cases of osteoperiostitis and osteomyelitis due to common germs. Through the formation of secondary rays emitted by the iodine atoms reached by the primary rays a sensitization of the inflamed regions would be produced and treatment would be more effective than with either one of the two methods alone —Durante's simple iodine applications or the roentgen therapeutic method. The process can be radiologically controlled in its phases of reabsorption of the osteophytes, of the periostitis, of the small sequestrums and the final eburnization. Since the connecting cartilages are respected, there are no mutilations and losses of function as so frequently are found in surgical interventions. Secondary irradiations were utilized by Ghilarducci, who effected iontophoresis with silver solution. Dr. Finocchiaro replaced this process by the direct introduction of the secondary irradiator—iodine—according to Durante's formula and by the indirect, inaccessible processes by impregnation of the reticuloendothelium with colloidal silver injected into the vein. From the standpoint of time, the cosmetic results, function and operative risk, the method used by Dr. Finocchiaro should be preferred to surgery in view of the results obtained.

Reinfusion of Blood in Ruptured Ectopic Pregnancy

The reinfusion of blood in ruptured ectopic pregnancy is a widely used method in surgical centers of Brazil. A report was recently published by Dr. João Alfredo, director of the emergency service of Recife. He operated on 26 patients with ruptured ectopic pregnancy. In all these cases blood reinfusion was performed, with only one death. The advantages of reinfusion with blood collected in the peritoneal cavity, as performed for the first time by Thier in 1914, were emphasized by Dr. Alfredo. After the abdomen has been opened the blood is collected in a sterile syringe and injected by an assistant into a vein of the elbow. In 3 of the 26 cases reported more than 1,000 cc. of blood was reinjected.

Anesthesia in Thoracic Surgery

The use of anesthesia in the operative treatment of tuberculous patients was recently described by Dr. Jesse Teixeira of Rio de Janeiro. He emphasized the advantages of the extradural administration of anesthetic drugs. The safety of this method makes it available in all thoracic surgery. Dr. Teixeira obtains the best results when the solutions are injected into the upper portion of the spine between the seventh cervical vertebra and the fourth dorsal vertebra. Anatomic conditions were reported and the questions of negative pressure and diffusion of fluids in the extradural space were discussed. A personal clearcut conception is set forth to explain the exclusive control of sensitive paths and preservation of motile mechanisms. He presented also the good effects observed postoperatively in 59 cases, in which pneumectomy was performed in 1 case, mastectomy in 2 cases, extrapleural pneumothorax in 1 case, the operation of Graf-Schmidt in 2 cases, the operation of Semb in 11 cases and partial thoracoplasties in 42 cases.

Brief Items

The health department of Petropolis, the so-called summer capital of Brazil, will be improved, with the cooperation of the Pan American Sanitary Bureau, in order to become the most up to date municipal health organization in the country. Petropolis, a city of about 60,000 population, is set on a plateau with an altitude of 2,000 feet, and its health department will be used in the future as a demonstration unit of modern public health administration and for the training of sanitary personnel.

With the cooperation of the Brazilian Public Health Service, six tuberculosis sanatoriums and three preventoriums will be opened soon in the cities of Belem (state of Para), Fortaleza (state of Ceara), Recife (state of Pernambuco), Natal (state of Rio Grande do Norte), Vitoria (state of Espirito Santo) and Porto Alegre (state of Rio Grande do Sul).

With the aid of the federal government, three more modern leprosariums have been built recently in different states of Brazil. There are now nineteen first class leprosariums and fourteen others that are not rated as good ones.

Deaths

Owing to the accumulation of material of military importance, the publication of obituaries has been somewhat delayed; hence the publication of four pages in this issue.

Stephen Walter Ranson, Chicago; Rush Medical College, Chicago, 1907; associate in anatomy in 1908, assistant professor in 1909, associate professor in 1910 and professor of anatomy from 1911 to 1924 at Northwestern University Medical School, where he had been professor of neurology and director of the Neurological Research Institute since 1927; professor of neuroanatomy and head of the department of neuroanatomy and histology at the Washington University School of Medicine, St. Louis, from 1924 to 1927; member and past president of the American Association of Anatomists; member of the Association for Research in Nervous and Mental Disease and the American Physiological Society; fellow of the American Association for the Advancement of Science; in 1929 the Stephen Ranson Lectureship in Medicine was created in his honor at Northwestern University; on the editorial board of the *Archives of Neurology and Psychiatry;* author of the textbook "The Anatomy of the Nervous System"; aged 62; died, August 30, of coronary thrombosis.

Donald M. Campbell ✦ Detroit; Michigan College of Medicine, Detroit, 1885; L.R.C.P., and L.R.C.S., Edinburgh, Scotland, 1886; for many years professor of ophthalmology at the Detroit College of Medicine and Surgery, which is now known as the Wayne University College of Medicine, where he was emeritus professor since 1937; specialist certified by the American Board of Ophthalmology and by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology, the American Laryngological, Rhinological and Otological Society and the American Otological Society, Inc.; fellow of the American College of Surgeons; honorary president of the Detroit Ophthalmological Society; president of the Wayne County Medical Society, 1914-1915; consulting ophthalmologist and otologist to the Harper Hospital and consulting ophthalmologist to the Receiving Hospital; in 1931 was awarded the honorary degree of doctor of science by the College of the City of Detroit; aged 77; died, August 25.

Frederick Arthur Wild, Bound Brook, N. J.; University of the City of New York Medical Department, New York, 1892; member of the Medical Society of New Jersey; past president of the Somerset County Medical Society; formerly served as a member of the board of education and as county coroner; member of the draft board during World War I; past president of the board of managers of the New Jersey Sanatorium for Tuberculous Diseases, Glen Gardner; aged 74; on the staffs of the Somerset Hospital, Somerville, and on the auxiliary staff of the Muhlenberg Hospital, Plainfield, where he died, July 14, of carcinoma of the prostate.

David Sieber Funk, Harrisburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1881; member of the House of Delegates of the American Medical Association in 1910; member and at one time vice president of the Medical Society of the State of Pennsylvania; past president of the Dauphin County Medical Society and the Harrisburg Academy of Medicine; for many years a member and formerly president of the staff of the Harrisburg Hospital; at one time member of the board of the U. S. Pension Examining Surgeons; aged 90; died, July 29, in a hospital at Richmond, Va., of arteriosclerosis.

George R. Clayton, Lima, Ohio; Northwestern University Medical School, Chicago, 1898; member of the Ohio State Medical Association; specialist certified by the American Board of Ophthalmology and by the American Board of Otolaryngology; past president of the Academy of Medicine of Lima and Allen County; veteran of the Spanish-American War; for many years a medical officer in the U. S. Army; aged 69; died, June 13, in the Lima Memorial Hospital.

Giles Mortimer Fleming, Cleveland, N. C.; Emory University School of Medicine, Atlanta, Ga., 1919; member of the Medical Society of the State of North Carolina; served in the medical corps of the U. S. Army during World War I; for many years surgeon for the Southern Railway; on the staffs of the H. F. Long Hospital, Statesville, and the Rowan Memorial Hospital, Salisbury; aged 50; was found dead, July 22, of coronary thrombosis.

John Rowlands Shannon, Richmond, Va.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1890; member of the Medical Society of the State of New York and of the American Ophthalmological Society; fellow of the American College of Surgeons; served during World War I; consulting ophthalmologist to the Manhattan Eye, Ear and Throat Hospital, New York; aged 78; died, July 4, of uremia.

Joseph Payne ✦ Midland Park, N. J.; Baltimore Medical College, 1904; formerly mayor; for many years served as county physician; health officer; medical examiner for the draft board during World War I; member and vice president of the board of education; member of the board of managers of the Bergen Pines, Bergen County Hospital, Ridgewood; aged 70; died, June 27, in Southold, N. Y.

Bertha Estell Bush, Chicago; Woman's Medical College, Chicago, 1889; member of the Illinois State Medical Society; formerly instructor and assistant professor of pathology at her alma mater; on the staffs of the West Suburban Hospital, Oak Park, Ill., St. Francis Hospital, Evanston, Ill., Ravenswood Hospital and the Women and Children's Hospital; aged 76; died, July 25.

Scurry Latimer Terrell, El Paso, Texas; College of Physicians and Surgeons, Baltimore, 1895; member of the State Medical Association of Texas; served with the British Army and later in the medical corps of the U. S. Army during World War I; at one time professor of otology at the Southern Methodist University Medical Department, Dallas; aged 72; died, July 12.

George Gustave Wallschlaeger, Milwaukee; Chicago College of Medicine and Surgery, 1917; member of the State Medical Society of Wisconsin; served in France as a lieutenant in the medical corps of the U. S. Army during World War I; on the staffs of St. Mary's and St. Luke's hospitals; aged 50; died, July 13, of acute nephritis and chronic myocarditis.

Frank Rawlins Makemson, Bellefontaine, Ohio; Ohio Medical University, Columbus, 1900; past president of the Logan County Medical Society; served in the medical corps of the U. S. Army during World War I; formerly served as county coroner; aged 69; died, June 10, of aortitis, tabes dorsalis, chronic nephritis and arteriosclerosis.

James E. Dodson, Vernon, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1906; health officer of Vernon; formerly health officer of Wilbarger County; on the staff of Christ the King Hospital; chairman of the Health and Emergency Medical Service, Civilian Defense, for Wilbarger County; aged 65; died recently of coronary thrombosis.

Alphonse Ferron, Montreal, Que., Canada; M.B., School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, in 1907 and M.D. in 1909; professor of clinical surgery and orthopedics at the University of Montreal Faculty of Medicine; for many years surgeon at the Hopital Notre-Dame and the Hopital Ste. Justine; died in June.

Anthime Charbonneau, Keeseville, N. Y.; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1892; member of the Medical Society of the State of New York; served as health officer for the towns of Ausable and Chesterfield and the village of Keeseville; aged 75; died, June 13, of pernicious anemia.

Joseph S. Westerfield, Conway, Ark.; University of Louisville (Ky.) Medical Department, 1880; member of the Arkansas Medical Society; secretary and past president of the Faulkner County Medical Society; formerly city and county health officer; registrar of vital statistics for the state bureau of health; aged 90; died, June 28, of empyema.

Earle Chester Hinman, Greensburg, Ohio; Ohio Medical University, Columbus, 1898; member of the Ohio State Medical Association; formerly member of the board of education; aged 76; on the staffs of the Citizens Hospital, Barberton, and the Peoples Hospital, Akron, where he died, June 30, of injuries received when he fell from a ladder.

Bruce Hetrick Guistwhite, Cumberland, Md.; University of Maryland School of Medicine, Baltimore, 1914; member of the Medical and Chirurgical Faculty of Maryand; served during World War I; for many years physician for the Baltimore and Ohio Railroad; aged 54; died, June 3, in the Memorial Hospital of cerebral hemorrhage.

Roy Alfred Gregory ✦ Plainfield, N. J.; University of Virginia Department of Medicine, Charlottesville, 1925; formerly associated with the U. S. Public Health Service; on the staff of the Muhlenberg Hospital; consultant at the New Jersey State Village for Epileptics, Skillman; aged 49; died, June 28, of cerebral thrombosis.

Douglas S. Kistler, Wilkes-Barre, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; a founder and for many years a member of the board of directors of the Wyoming Valley Homeopathic Hospital; aged 69; died, June 27, of pulmonary hemorrhage.

Benjamin S. White, Greensburg, Ind.; College of Physicians and Surgeons, Keokuk, Iowa, 1881; member of the Indiana State Medical Association; for many years president of the city board of health and county physician; on the staff of the Decatur County Memorial Hospital; aged 87; died, July 3, of cardiac dilatation.

Charles M. Gibson, Pittsburg, Kan.; University of Kansas School of Medicine, Kansas City, 1907; member of the Kansas Medical Society; for many years a member and at one time president of the board of education; on the staff of the Mount Carmel Hospital; aged 62; died, June 15, of hemorrhage due to carcinoma of the cecum.

Albert William Ebeling, Warrenton, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1897; formerly instructor of chemistry and physiology at the Central Wesleyan College; veteran of the Spanish-American War; aged 73; died, June 19, in the Veterans Administration Facility, Jefferson Barracks, of carcinoma.

Benjamin S. Swetland, Brocton, N. Y.; University of Buffalo School of Medicine, 1878; member of the Medical Society of the State of New York; formerly president of the old high school district of Brocton and school physician; for many years town health officer; aged 88; died, June 18, of arteriosclerosis.

Thomas Jefferson Wenner ✠ Wilkes-Barre, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1918; member of the American Society of Clinical Pathologists; served during World War I; on the staff of the Nesbitt Memorial Hospital, Kingston; aged 48; died, June 16, of coronary disease.

Emil Aronson, Dallas, Texas; University of Dorpat Faculty of Medicine, Russia, 1887; formerly clinical professor of medicine at the Baylor University College of Medicine; on the staff of St. Paul's Hospital from 1895 to 1940; aged 79; died, July 14, of uremia, diabetes mellitus and hypertrophy of the prostate.

John C. Dunn, Lewistown, Mont.; Northwestern University Medical School, Chicago, 1902; formerly health officer of Fergus County; at one time medical superintendent of the Montana State Hospital, Warmspring; aged 68; died, June 21, in Torrance, Calif., following an operation for intestinal obstruction.

Joseph Augustine O'Connor, Rochester, N. Y.; University of Michigan Homeopathic Medical School, Ann Arbor, 1910; member of the Medical Society of the State of New York; on the staffs of the Highland and St. Mary's hospitals; aged 56; died, June 11, of coronary occlusion and arteriosclerosis.

Alfred Jacoby, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1902; member of the Louisiana State Medical Society; fellow of the American College of Surgeons; visiting surgeon, Charity Hospital; aged 64; died, June 13, of subarachnoid hemorrhage and arteriosclerosis.

John Wesley Tippie, Medina, Ohio; Starling-Ohio Medical College, Columbus, 1908; at one time surgeon, U. S. Public Health Service Reserve, serving on the staffs of the U. S. Veterans' Hospital, number 88, Memphis, Tenn., and the U. S. Veterans' Hospital number 76, Maywood, Ill.; aged 55; died, June 26.

Anthony Eller Klein, Corona, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1900; member of the Medical Society of the State of New York; aged 68; died, June 1, in the Queens General Hospital, Jamaica, of bronchopneumonia, cerebral thrombosis and hypertensive heart disease.

Charles Munson Griswold, Milwaukee; Milwaukee Medical College, 1910; veteran of the Spanish-American War and World War I; aged 68; formerly on the staff of the Veterans Administration Facility, Wood, where he died, June 12, of hypertensive cardiovascular disease and prostatic hypertrophy.

George Arthur Bemis, Garner, Iowa; State University of Iowa College of Medicine, Iowa City, 1909; member of the Iowa State Medical Society; served as a captain in the medical corps of the U. S. Army during World War I; aged 58; died, June 30, in a hospital at Mason City of coronary thrombosis.

Omer Frank Allen ✠ Miami, Fla.; Rush Medical College, Chicago, 1900; for many years president of the bank in Mount Olive, Ill., and at one time physician for the Illinois Central Railroad; member of the examining board during World War I; aged 72; died, August 24, following a gastroenterostomy.

John Arnason Johnson ✠ Tacoma, Wash.; Chicago College of Medicine and Surgery, 1910; member of the Pacific Coast Oto-Ophthalmological Society; served during World War I; formerly medical examiner for the Veterans Administration; aged 65; died, June 12, of arteriosclerosis and hypertension.

Edward H. Cowan, Crawfordsville, Ind.; Miami Medical College, Cincinnati, 1873; Civil War veteran; at one time health officer of Crawfordsville and member of the school board; for many years a member of the U. S. Pension Board; aged 95; died, August 1, in Dallas, Texas, of arteriosclerosis.

Charles Levering Ireland, Columbus, Ohio; Cleveland Homeopathic Medical College, 1898; member of the Ohio State Medical Association; chief of physical therapy at the Walter Reed General Hospital, Washington, D. C., during World War I; aged 70; died, June 10, of coronary occlusion.

William Thomas Robison ✠ Murfreesboro, Tenn.; Rush Medical College, Chicago, 1915; served in the medical corps of the U. S. Army during World War I; fellow of the American College of Surgeons; on the staff of the Rutherford Hospital; aged 54; died, June 9, of cerebral thrombosis.

Albert A. Maurer, New York; Rush Medical College, Chicago, 1881; member of the Medical Society of the State of Wisconsin; served as a captain in the medical corps of the U. S. Army during World War I; aged 83; died, June 29, in a hospital near Paterson, N. J., of arteriosclerosis.

Vernon Albert Dean, Talco, Texas; Baylor University College of Medicine, Dallas, 1938; member of the State Medical Association of Texas; on the staff of St. Joseph's Hospital, Paris; aged 33; died, June 25, in the Baylor Hospital, Dallas, of pneumonia, acute hepatitis and acute nephritis.

Patrick Henry Keefe, Providence, R. I.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1879; member of the Rhode Island Medical Society; fellow of the American College of Surgeons; aged 87; died, June 4, in the Charles V. Chapin Hospital of arteriosclerosis.

Charles D. Watkins, Etna, Ohio; Columbus Medical College, 1886; at one time served in the Ohio State House of Representatives and as state senator; aged 77; died, June 27, in the Mount Carmel Hospital, Columbus, of arteriosclerotic heart disease, varicose ulcer and thrombophlebitis.

Asel James Bennett ✠ Auburn, N. Y.; Syracuse University College of Medicine, 1918; past president of the Cayuga County Medical Society; on the staffs of the City and Mercy hospitals; formerly member of the board of education; aged 49; died, June 27, of cerebral hemorrhage.

John Gillison Allan, Edgewood, Ill.; University of Louisville (Ky.) Medical Department, 1882; member of the Illinois State Medical Society; for many years president of the bank of Edgewood; aged 83; died, July 1, in St. Anthony's Hospital, Effingham, of carcinoma of the tongue.

Harry Burton Farnsworth, Oakland, Calif.; American Medical Missionary College, Chicago, 1900; fellow of the American College of Surgeons; attending surgeon, Alta Bates Hospital, Berkeley, and the Providence Hospital; aged 66; died, June 4, of chronic myocarditis.

Leslie Spangler Porter ✠ Portland, Ore.; University of Oregon Medical School, Portland, 1934; resident physician at the Shriners Hospital for Crippled Children; formerly health officer of Coos County; aged 32; died, June 1, in Modesto, Calif., of acute pulmonary edema.

Henry W. Hodgson, Cumberland, Md.; Washington University School of Medicine, Baltimore, 1871; past president of the Allegany-Garrett Counties Medical Society; member of the Medical and Chirurgical Faculty of Maryland; aged 96; died, June 24, of pneumonia.

George Good, Union City, N. J.; Cornell University Medical College, New York, 1901; for many years on the staffs of the North Hudson Hospital, Weehawken, and the Christ Hospital, Jersey City; aged 72; died, July 17, following a cholecystectomy for cholelithiasis.

George Birch Clark, Armonk, N. Y.; Syracuse University College of Medicine, 1894; member of the draft board

during World War I; aged 69; on the staff of the Northern Westchester Hospital, Mount Kisco, where he died, July 6, of carcinoma of the bladder.

Armand Oliva Metivier, Chicopee Falls, Mass.; College of Physicians and Surgeons, Boston, 1915; member of the Massachusetts Medical Society; served in the medical corps of the U. S. Army during World War I; aged 52; died, July 2, of heart disease.

Thomas William Tormey ✠ Madison, Wis.; Rush Medical College, Chicago, 1902; fellow of the American College of Surgeons; on the staffs of the Madison General and St. Mary's hospitals; aged 63; died, July 8, of uremia and benign hypertrophy of the prostate.

Forest Field Foster, Kansas City, Mo.; University Medical College of Kansas City, 1913; member of the Missouri State Medical Association; served during World War I; aged 52; died, June 8, in Kansas City, Kan., of injuries received in an automobile accident.

Leonard Riley Jenkins ✠ Ogden, Utah; Leland Stanford Junior University School of Medicine, San Francisco, 1916; served in the U. S. Navy during World War I and for four years later; aged 52; died, June 17, of diabetes mellitus and coronary heart disease.

Louis S. Dunn ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1907; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; served during World War I; aged 56; died, June 16.

James Frederick Stewart Marshall, Missoula, Mont.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1908; member of the Medical Association of Montana; served overseas during World War I; aged 54; died, June 2, of coronary occlusion.

Alex D. Cameron, Kearney, Neb.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1882; formerly served as mayor of Kearney and as county coroner; on the staff of the Good Samaritan Hospital; aged 80; died, June 29, of heart disease.

William J. Steward ✠ Quarryville, Pa.; University of Maryland School of Medicine, Baltimore, 1904; member of the American Psychiatric Association; formerly resident physician at the Polk (Pa.) State School; aged 64; died, June 20, of heart disease.

Frank Ellsworth Strickling, Decatur, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1907; member of the Illinois State Medical Society; served during World War I; aged 56; died, June 24, of chronic nephritis and uremia.

William Benjamin Eason, Jackson, Tenn.; Medical Department of Tulane University of Louisiana, New Orleans, 1898; member of the Tennessee State Medical Association; served during World War I; aged 66; died, June 9, of cirrhosis of the liver.

Frank Edward McCullough ✠ Sacramento, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; formerly health officer of North Sacramento; served during World War I; aged 62; died, June 4, of coronary thrombosis.

Frederick William Hobelmann ✠ Baltimore; Baltimore Medical College, 1901; for many years assistant visiting urologist at the Johns Hopkins Hospital; aged 66; died, June 14, in the Mercy Hospital of heart disease and bronchiogenic carcinoma.

Noah Robert Harlan ✠ Freeport, Ill.; Northwestern University Medical School, Chicago, 1909; fellow of the American College of Surgeons; on the staff of the Deaconess Hospital; aged 62; died, June 23, of angina pectoris and arteriosclerosis.

Louis Carl Sondel ✠ Chicago; Bennett Medical College, Chicago, 1915; served as a first lieutenant during World War I; on the staffs of the American, Alexian Brothers' and Edgewater hospitals; aged 51; died, June 17, of coronary occlusion.

William Freeman Nicholson, Hamilton, Ont., Canada; University of Toronto Faculty of Medicine, 1910; past president of the College of Physicians and Surgeons of Ontario; aged 59; died, June 3, as the result of an automobile accident.

John B. Wickensimer ✠ Steger, Ill.; Chicago College of Medicine and Surgery, 1913; served during World War I; aged 55; died, June 18, in the Veterans Administration Facility, Hines, of pulmonary tuberculosis and congestive heart failure.

David Jesse Thompson, Webbville, Ky.; Kentucky School of Medicine, Louisville, 1904; member of the Kentucky State Medical Association; medical officer of the local Selective Service System; aged 68; died, June 25, of heart disease.

Maxcy Lee Brogden, West Columbia, S. C.; University of Maryland School of Medicine, Baltimore, 1909; member of the South Carolina Medical Association; aged 57; died, June 1, in the South Carolina Baptist Hospital, Columbia.

Donald F. S. Smith, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1908; member of the Medical Association of Georgia; for many years city physician; aged 67; died, June 23, of coronary thrombosis.

William W. Beveridge, Asbury Park, N. J.; Bellevue Hospital Medical College, New York, 1898; member of the Medical Society of New Jersey; aged 73; died, June 10, of gangrene of both legs and chronic myocarditis.

Louis Barenbaum ✠ Philadelphia; Temple University School of Medicine, Philadelphia, 1909; examining physician for the local draft board number 6, Selective Service System; aged 60; died, June 6, of coronary occlusion.

Charles Andrew Beatle, Longmont, Colo.; Hahnemann Medical College and Hospital, Chicago, 1903; served during World War I; aged 68; died recently in the Fitzsimons General Hospital, Denver, of cardiorenal disease.

Charles Nathaniel Bibbins ✠ Watertown, N. Y.; Bellevue Hospital Medical College, New York, 1894; past president of the Medical Society of the County of Jefferson; aged 75; died, June 12, of heart disease and hypertension.

John F. McGuinness, Woburn, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1923; member of the Massachusetts Medical Society; aged 49; died, June 17, in the Choate Memorial Hospital of myocarditis.

William Ernest Crume, Bardstown, Ky.; Kentucky University Medical Department, Louisville, 1905; member of the Kentucky State Medical Association; county coroner; aged 61; died, June 5, of coronary thrombosis.

Francis Charles Myers ✠ Tulsa, Okla.; University of Nashville (Tenn.) Medical Department, 1905; served overseas as a captain in the medical corps of the U. S. Army during World War I; aged 61; died, June 7.

Oren Morrison Landon, Galesburg, Ill.; State University of Iowa College of Medicine, Iowa City, 1882; at one time secretary of the board of pension examiners; aged 88; died, June 1, in Columbus, Ohio, of senility.

Delmer L. Davis, Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1902; at one time assistant professor of surgery at the College of Medical Evangelists; aged 66; died, June 17, of pulmonary embolism.

L. Lester Williams, Mount Vernon, Ohio; Jefferson Medical College of Philadelphia, 1882; member of the Ohio State Medical Association; for many years member of the city board of education; aged 87; died, June 1.

Theodore Hudson Harrell, Mission, Texas; Memphis (Tenn.) Hospital Medical College, 1901; served during World War I; specialist certified by the American Board of Pediatrics, Inc.; aged 67; died, June 10.

Miles Burwell Abernethy, Reidsville, N. C.; North Carolina Medical College, Davidson, 1906; past president of the Rockingham County Medical Society; served during World War I; aged 61; died, June 19.

Cora D. Fenton, San Diego, Calif.; Cleveland Medical College, 1893; aged 82; died, June 13, in the Paradise Valley Sanitarium and Hospital, National City, of pulmonary embolism and fractured neck of femur.

Charles Otto Moore, Paris, Idaho; John A. Creighton Medical College, Omaha, 1914; served during World War I; aged 55; died recently in the Holy Cross Hospital, Salt Lake City, of coronary thrombosis.

Robert Best, Killarney, Man., Canada; National University of Ireland, 1902; aged 65; died, June 30, in the Brandon (Man.) General Hospital of pulmonary embolism and postoperative appendical abscess.

James Arden Southall, Hopkinsville, Ky.; College of Physicians and Surgeons, Baltimore, 1883; past president and secretary of the Christian County Medical Society; aged 82; died, June 20, of arteriosclerosis.

Paul Arthur Cole, Spokane, Wash.; University of Oregon Medical School, Portland, 1941; aged 30; died, June 12, of pneumonia in the Deaconess Hospital, where he had recently completed his internship.

Cassius Lightner Campbell, Atlantic, Iowa; Miami Medical College, Cincinnati, 1881; member of the Iowa State Medical Society; aged 85; died, June 16, in the Atlantic Hospital of cerebral hemorrhage.

George Leo Weiler, Salt Lake City; George Washington University School of Medicine, Washington, D. C., 1909; veteran of the Spanish-American War; aged 65; died, June 24, of coronary thrombosis.

John Richard Shannon, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1896; veteran of the Spanish-American War; aged 72; died, June 18, of chronic myocarditis.

Willis Eldredge King, Sacramento, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1896; aged 68; died, June 9, in the Sutter Hospital of arteriosclerosis and chronic myocarditis.

Henry Oliver Beeson, San Bernardino, Calif.; Kansas City (Mo.) Medical College, 1880; member of the California Medical Association; aged 89; died recently of diabetes mellitus and acute nephritis.

Charles Oliver Henry, Fairmont, W. Va.; College of Physicians and Surgeons, Baltimore, 1882; member and past president of the West Virginia State Medical Association; aged 85; died, June 20.

Luther E. Evans, West Jefferson, Ohio; Starling Medical College, Columbus, 1900; for many years a member of the board of education; aged 67; died, June 25, of bronchopneumonia and diabetes mellitus.

Benjamin Warren Vaughan, Columbia, Mo.; University of Missouri School of Medicine, Columbia, 1901; aged 65; died, June 7, in Kansas City of cerebral hemorrhage and hypostatic pneumonia.

George James Goodin, Detroit, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1907; on the staff of the Illini Community Hospital, Pittsfield; aged 58; died, June 29.

James Fife Fisher, Sabina, Ohio; Starling Medical College, Columbus, 1900; member of the Ohio State Medical Association; aged 68; died, June 4, of chronic interstitial nephritis with uremia.

Charles Edgar Harvey, Greenport, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1907; aged 72; died, June 21, in the Eastern Long Island Hospital of nephritis.

William Burnham Fisk, Oak Park, Ill.; Northwestern University Medical School, Chicago, 1898; member of the Illinois State Medical Society; aged 71; died in June, of coronary occlusion.

Arthur Stephenson Spangler, Pauls Valley, Okla.; University of the South Medical Department, Sewanee, Tenn., 1904; also a druggist; aged 68; died, June 22, of pulmonary embolism.

Howard George Hunsberger, Mount Hope, Kan.; University Medical College of Kansas City, Mo., 1901; served during World War I; aged 67; died, June 1, of coronary occlusion.

Camillus F. Eason, Hickory, Va.; University College of Medicine, Richmond, 1897; for many years member of the county board of health; aged 65; died, June 4, of coronary occlusion.

Joseph Francis Steininger ✠ Gary, Ind.; University of Illinois College of Medicine, Chicago, 1939; aged 29; was drowned while fishing in Miner Lake near Allegan, Mich., June 30.

William W. Swarts, Wichita Falls, Texas; Physio-Medical College of Indiana, Indianapolis, 1893; on the staff of the Wichita General Hospital; aged 77; died, June 3, of angina pectoris.

Byron B. Hauser, Hooper, Neb.; College of Physicians and Surgeons, Baltimore, 1898; member of the Nebraska State Medical Association; aged 70; died, June 14, of diabetes mellitus.

Julius Propper ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1904; aged 63; died, June 27, in the Memorial Hospital of coronary thrombosis and carcinoma of the bladder.

Henry James Matthews ✠ Nicholville, N. Y.; University of Vermont College of Medicine, Burlington, 1879; on the staff of the Potsdam (N. Y.) Hospital; aged 87; died, June 28, of uremia.

Charles Andrew Inks ✠ Nappanee, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; aged 66; died, June 21, of heart disease.

James Louis Post, Van Buren, Ark.; St. Louis University School of Medicine, 1907; member of the Arkansas Medical Society; aged 59; died recently of cardiovascular renal disease.

Boze B. Kitchens, Mitchell, Ga.; University of Georgia Medical Department, Augusta, 1884; aged 87; died, June 27, in the Rawling's Sanitarium, Sandersville, of prostatic disease.

Harry Leonard Merscher, Philadelphia; Jefferson Medical College of Philadelphia, 1910; aged 54; died, June 21, in the Lankenau Hospital of acute cholecystitis with perforation.

Frank Prior Hardy, Searcy, Ark.; University of Arkansas School of Medicine, Little Rock, 1913; member of the Arkansas Medical Society; aged 55; died, June 22, of lymphatic leukemia.

William S. Gates, Ludington, Mich.; Chicago Medical College, 1881; aged 86; died, June 29, in the Paulina Stearns Hospital of aneurysm of the abdominal aorta with thrombosis.

Frederick Rosenfeld, Kew Gardens, N. Y.; Kaiser-Wilhelms-Universität Medizinische Fakultät, Strassburg, Germany, 1900; aged 65; died, June 12, of cerebral hemorrhage.

Arthur Blackwell Cosby, Big Island, Va.; Medical College of Virginia, Richmond, 1895; member of the Medical Society of Virginia; aged 70; died, June 26, of heart disease.

Henry Stevens Kiersted, San Francisco; University of Pennsylvania Department of Medicine, Philadelphia, 1893; aged 69; died recently of chronic myocarditis and arteriosclerosis.

Albert Olen Menefee, Tatum, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1890; aged 77; died, June 12, in a hospital at Dallas of heart disease.

William A. Berry, Ashland, Ky.; Hospital College of Medicine, Louisville, 1887; member of the Boyd County Health Department; formerly a druggist; aged 80; died, June 23.

Rufus W. Ratliff, Jonesboro, Ark.; Memphis (Tenn.) Hospital Medical College, 1900; member of the Arkansas Medical Society; aged 77; died, June 23, in St. Bernard's Hospital.

Stephen Fleming, Eureka, Calif.; College of Physicians and Surgeons of San Francisco, 1912; aged 64; died, June 12, in the Humboldt County Hospital of coronary thrombosis.

Thomas M. Nimmo, Eastview, Ky.; University of Louisville Medical Department, 1895; for many years local surgeon for the Illinois Central Railroad; aged 80; died, June 22.

David Thomas Lesher, Williamsport, Md.; Jefferson Medical College of Philadelphia, 1880; aged 88; died, June 1, in Hagerstown of chronic myocarditis and arteriosclerosis.

Jacob Louis Winner, Baltimore; Baltimore Medical College, 1893; member of the Medical and Chirurgical Faculty of Maryland; aged 70; died, June 21, of arteriosclerosis.

Michael Phillip Cannon ✠ Chicago; Chicago College of Medicine and Surgery, 1916; aged 65; died, June 1, in Ocala, Fla., of coronary thrombosis and hypertension.

Samuel Hubbard Gaines, Lucien, Okla.; Chattanooga (Tenn.) Medical College, 1906; aged 59; died, June 1.

George W. Longenecker ✠ Elsmore, Kan.; Kansas City (Mo.) Medical College, 1902; aged 66; died, June 10.

DIED IN MILITARY SERVICE

Thomas Anthony Martin, Providence, R. I.; Jefferson Medical College of Philadelphia, 1935; member of the Rhode Island Medical Society and of the New England Obstetrical and Gynecological Society; was a first lieutenant in the medical corps reserve and was called to active duty Feb. 24, 1941 as a captain in the Rhode Island National Guard Medical Detachment, 103d Field Artillery, 43d Division, stationed at Camp Blanding, Fla.; aged 32; died, August 4, in the Walter Reed General Hospital, Washington, D. C., of lymphosarcoma.

Brunson Burns Matthews, Shelby, N. C.; Medical College of the State of South Carolina, Charleston, 1927; formerly public health officer of Andalusia, Ala.; was called to active duty as a captain in the medical corps of the U. S. Army, July 10, 1942; was stationed at Camp Blanding, Fla., where he died in the Station Hospital, August 3, of bilateral pulmonary embolism secondary to bronchopneumonia, aged 39.

Bureau of Investigation

PHILLIPS ALIAS PHILLIPS

Criminal Impersonates His Former Medical Corps Superior

A man named Phillips, although not a doctor of medicine and not licensed to practice anywhere, was able to hold a position temporarily as chief resident and chief assistant surgeon at the Enloe Hospital, Chico, Calif. His record attracted wide attention.

As with many others who engage in a criminal career, a relatively insignificant detail resulted in his apprehension. J. W. Williams, special agent for the California State Board of Medical Examiners, was going through some prescriptions in connection with another case and noted some 200 prescriptions which were incompletely filled out and signed by Phillips. When interviewed by the agent Phillips readily admitted that he was not licensed in California but pleaded ignorance of the laws and claimed to have held similar positions in eastern hospitals without a license. He claimed, however, that he had graduated from the University of Tennessee College of Medicine on June 8, 1916 and was licensed to practice in West Virginia in 1929 but stated that this license had become delinquent because of nonpayment of tax in 1932.

Phillips claimed, further, to have been deputy state commissioner of public health in Indiana in 1916 and 1917; to have been employed by the Division of Industrial Hygiene and Medicine of the federal government, 1918-1920; to have been director of the medical department of the Ford Motor Company, Detroit, 1920-1921, and medical director of the Wallis Tractor Company and Racine Auto Tire Company, Racine, Wis., and the Fuller Construction Company, Cumberland, Md., for a period of one year each, from 1922 to 1924. He stated that he had been employed by the W. F. Prior Company of Hagerstown, Md., where he claimed to have directed research work until 1926. From 1926 to 1929 he claimed to have served as a resident in various institutions, including Johns Hopkins at Baltimore, the Newcomb Hospital, Vineland, N. J., and the Franklin Square Hospital at Baltimore; to have practiced in West Virginia in 1929 and 1930; to have been employed by the federal government as director of industrial medicine in Washington, D. C.; to have been medical director of the Soil Conservation Service in New Mexico, and, prior to his arrival in Chico in April 1942, contract surgeon in the Civilian Conservation Corps.

Inquiry addressed to the West Virginia Public Health Council indicated that Phillips had never been licensed to practice medicine in that state, and the University of Tennessee College of Medicine advised that he appeared to be an impostor to whom a copy of the diploma of James Herman Phillips, M.D., of Dora, Ala., had been issued in 1930 on receipt of an affidavit stating that he had lost the original in Europe during World War I.

Phillips was arrested at Chico May 26, 1942 and interrogated for approximately three hours. During this time he signed a fourteen page statement in which he confessed to being an impostor, stating that he had never attended medical school, that his diploma was obtained on false affidavit and, further, that he was an ex-convict with a long criminal record and that his true name was Arthur Osborne Phillips.

Phillips claimed that the diploma was in the possession of the prosecuting attorney at Murphy, Idaho, who had taken it to return to the University of Tennessee College of Medicine after Phillips was convicted and sentenced to serve from one to fourteen years in the state prison for impersonating a practitioner of medicine.

Phillips stated that he was a high school graduate, had taken a special course in biology and bacteriology, correspondence courses in placer mining and soil and water conservation from a WPA project school in Idaho and also correspondence courses in agriculture and home economics. He claimed to have attended medical school at the University of Buffalo in 1915 and 1916 but later admitted that this statement was false. This is an interesting claim, in view of the diploma draft reproduced herewith, taken from the files of the Bureau of Investigation. He attempted to have the diploma made in 1923 giving as his address at that time Box 1733, Atlanta, Ga., this being his cell number in the Atlanta Federal Prison in which he was then confined.

A complete record of all his known convictions appears in the accompanying table, as given by the California authorities. It is interesting to compare periods of imprisonment with the positions he claimed to have held during those periods.

In 1918 he served as a private in the Army Medical Corps as an orderly under the real J. H. Phillips, M.D. In 1921 the

THIS IS MY RETURN FOR COPY—
Certificate
BE IT KNOWN
THE UNIVERSITY OF BUFFALO—COLLEGE OF MEDICINE
The Wilson Infirmary
This is to certify that ARTHUR OSBORN PHILLIPS, M.D. has completed the Course of
Study prescribed in the FORD ORGANIZED COURSE of this Institution
extending over a period of six months and having passed the required
examinations, is hereby granted this Certificate June 5, 1923
BUFFALO, NEW YORK

Reproduction of a draft for fake diploma, 1923

Chico, Calif., 1942

Murphy, Idaho, 1937

latter entered an institution, in which he is still located. Subsequent to this, the impostor visited Dr. Phillips' family in Alabama and is alleged to have taken the diploma and license, which were on the walls of the room which he occupied.

In 1930 he appears to have served for a short time as an intern at St. Francis Hospital, Charleston, W. Va., but was discharged because of unprofessional conduct and because there was some question concerning his professional education and licensure.

When arrested, Phillips had in his possession membership cards issued to James Herman Phillips, M.D., for 1930 and 1931 by the West Virginia State Medical Association and Central Tri-State Medical Association of Ohio, Virginia and West Virginia. The records indicate that for one year he was a member of the Kanawha Medical Society and the West Virginia State Medical Association but was dropped, Jan. 1, 1931, for advertising and general attitude.

Subsequent to his release from Atlanta in 1934 he attempted to obtain reciprocity licenses in Maryland, West Virginia, South Dakota, Iowa, Colorado, Montana, Idaho, Pennsylvania, Minnesota, New Jersey, New Mexico and California on the basis of his fraudulent University of Tennessee College of Medicine diploma and credentials fraudulently obtained from the Alabama Board of Medical Examiners.

In 1936 he applied for a fellowship in the Mayo Foundation.

When he was arrested in Chico and taken to his own car an opening of the glove compartment revealed a revolver. He was unable to explain his possession of this weapon, which he as an ex-convict would not be allowed to possess in California. He was booked in the Chico city jail on a charge of violating section 2141 of the Business and Professions Code and remained in jail, in lieu of a $1,000 cash bail, until the following day, when he appeared before a justice of the peace and pleaded guilty to the charges. He was rebooked on a felony charge for possession of concealed weapons. On May 28 he was sentenced to the maximum penalty for practicing medicine without a license in California—six months in the county jail and $600 fine, and on June 29 he was sentenced to serve nine months in the Butte County jail for possession of firearms, this sentence to run concurrently with the other.

Much of the information reproduced herewith directly from the California report is authenticated from the files of the American Medical Association. Reproduced herewith are photographs taken of Phillips at Murphy, Idaho, in 1937 and at Chico, Calif., in 1942.

The most amazing feature of this story is not the man's colossal impudence and foolhardiness but rather the fact that he was able to conduct himself in an operating room in such a way as to avoid suspicion and yet was apprehended because of his incomplete prescriptions.

Complete Record of Phillips' Known Convictions

Contributor of Fingerprints	Name and Number	Arrested or Received	Charge	Disposition
PD, Cleveland, Ohio	Dr. Arthur O. Phillips, #22393	5/ 8/22	Impersonating U. S. officer	*5/27/22, 18 mo. USP, Atlanta, Ga.
USP, Atlanta, Ga.	Arthur Osborne Phillips, #14337	6/16/22	Impersonating Govt. officer	1 yr., 6 mo.
PD, Pittsburgh, Pa.	Dr. Arthur O. Phillips, #10983	11/22/24	Worthless checks	1 yr. Allegh. Co. jail
PD, Baltimore, Md.	Arthur O. Phillips, #24195	12/29/25	Defrauding hotels	1/11/26, 4 mo. Balt. city jail
PD, Decatur, Ill.	Arthur O. Phillips, #5585	5/17/26	Defrauding by check	TOT SO Christian Co. — *dism.
St. H. of C., Jessups, Md.	A. O. Phillips, #15166	6/ 2/28	F. P.	18 mo.
So, Brewton, Ala.	Dr. James Herman Phillips, #—	10/19/33	Practicing w/o cert.	
Kilby Prison, Montgomery, Ala.	James Herman Phillips, #C-7939	11/12/33	Pract. medicine w/o cert.	3 mo. 245 days
USM, Mobile, Ala	James Herman Phillips, #2437	Not given (prt. rec.)	Int. Rev. (Harr. Narc.)	1 yr., 1 day Atlanta, 4/23/34
USP, Atlanta, Ga.	James Herman Phillips, #44904	10/13/34	Vio. I. R. A.	1 yr., 1 day, 7/29/35 cond. rel.
So, Murphy, Idaho	James Herman Phillips, #—	2/13/37	Prac. med. w/o license	*P. G. to chg. of impersonating a practitioner of medicine on 5/26/37 sent. to serve not less than 1 yr. nor more than 14 yrs. in the SP
So, Mt. Home, Idaho	James Herman Phillips, #511	2/13/37	Pract. med. w/o license	Rel. to Idaho St. Patrolman for Trans.
SP, Boise, Idaho	James Herman Phillips, #5504	Not given	Impersonating practitioner of medicine	Sent. 5/26/37, 1-14 yrs.
PD, Chico, Calif.	James H. Phillips, #22358	5/26/42	Viol. Medical Practice Act	
J. W. Williams, Special Agent	James H. Phillips	Not given (F. P. 5/26/42)	2141, B & PC & Sec. 2, Dang. Weapons Act of 1923	

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

The following items are abstracts of stipulations in which promoters of "patent medicines," or medical devices have agreed with the Federal Trade Commission to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products.

Air-Way Reducing Girdle.—Discontinuance of this designation or any other representation that the wearing of the device will cause a definite reduction in weight or measurement or a loss of fatty tissue was agreed to by the Physicians' Supply Company, Inc., San Diego, Calif., in a stipulation that it signed with the Federal Trade Commission in August 1941. The concern further stipulated that it would no longer represent that this or any other girdle that it sells is nonabsorbent or that the possibility of skin infection from excreted waste matter absorbed by a girdle is eliminated by wearing this particular one.

Allergy Electric Mask.—The Federal Trade Commission announced in August 1941 that the Allergy Research Institute, Inc., Cincinnati, had entered into a stipulation in regard to some of the claims made for "Allergy Electric Mask" and "Allergy Electric Mask Filter" for treathay fever, rose fever and seasonal asthma. Subsequently (November 1941) the Commission announced that Ralph Hess of Cincinnati, who handled the advertising for Allergy Electric Mask had agreed to cease representing that the device will prevent or cure or be a medical treatment for hay fever, rose fever or seasonal asthma, will purify or completely filter the air breathed or prevent pollens and molds from reaching the sensitive membranes.

Perspir-ator.—This Turkish bath cabinet was put out by an Irene G. Fenton, trading as Perspir-ator Manufacturing Company, Toledo, Ohio. In August 1941 this person stipulated with the Federal Trade Commission that she would discontinue the following misrepresentations in the sale of her cabinet: that the use of this device will rejuvenate the entire system; that it is a cure or remedy for excess weight or keeps the pores open or induces elimination of body poisons; that it will give relief to the nervous manifestations attending menopause; that it will cure or break up colds or correct sallow, sluggish skin or blackheads and other skin blemishes; that it is a cure or remedy for symptoms of overindulgence, or corrects rheumatism, lumbago, arthritis and muscular pains. Irene G. Fenton further stipulated that in the future her advertisements would not fail to reveal that normal persons may faint and be seriously burned when using her cabinet unattended.

Spalding's Wonder Plasters.—These were put out by Spalding Plaster Company, Inc., Providence, R. I., which stipulated with the Federal Trade Commission in September 1941 to discontinue the following misrepresentations: that these plasters will remedy or cure rheumatism, arthritis, neuritis or other ailments or will be of any benefit in such conditions beyond the temporary relief of painful symptoms; that they will restore normal circulation throughout the system or affect the circulation aside from stimulating it at the site of application, or that the plasters are entirely different from competing products or that the principle involved in the "Spalding Method" is unique or new.

Correspondence

ESSENTIAL HYPERTENSION

To the Editor:—The report of the Council on Pharmacy and Chemistry prepared by Goldblatt, Kahn and Lewis in THE JOURNAL, August 8, is an unusually complete survey of the hypertension problem but ignores the weight of recent evidence for the view that essential hypertension in man is fundamentally different from any of the human or experimental types of hypertension which from their outset are associated with organic renal lesions or with organic obstruction to flow in the renal artery or the abdominal aorta proximal to a renal artery.

It mentions but does not sufficiently emphasize that essential hypertension in man is often unstable, present only under stress, and may disappear for months or years under dietetic, psychotherapeutic or mild sedative management. It ignores the probability that certain cases of human hypertension have adrenal cortex hyperplasia and overactivity as the fundamental defect, and that desoxycorticosterone causes a nonrenal hypertension similar to the hypertension of Cushing's syndrome. Renal arteriosclerosis is assumed by the authors to underlie nearly all cases of benign essential hypertension. They include the proviso "If the idea is correct that renal arteriosclerosis and arteriolar sclerosis are the morphologic bases of most cases of so-called essential hypertension in man" but ignore the imposing body of evidence that this supposition is fallacious. The result is to give an undeservedly pessimistic outlook on the prognosis in individual cases of hypertension today, and on the utility of seeking improved therapy for a condition which, to the authors, is an inescapable sequel of involutional changes in the renal vascular bed.

Conceding that unilateral renal arterial narrowing may lead to arteriosclerosis in the opposite kidney in those species, including man, in which such a stenosis causes hypertension, the Council report quietly ignores the obvious fact that the renal arteriosclerosis seen in many human cases of hypertension may also be a sequel to the hypertension and not the "basic cause." Any one who follows the retinal vascular changes in human hypertensives is aware of the fact that they progress slowly in those who tolerate hypertension for years or decades but go to pieces rapidly in those who show evidence of rapidly progressing arteriosclerosis of the kidney. The Council's authorities can scarcely hope to persuade us that retinal arterial disease is not dependent in many cases on hypertension and that it cannot retrogress when hypertension is abolished, or that renal arteriosclerosis is a disease which invariably precedes hypertension, progresses with relentless course uninfluenced by hypertension or else remains stationary in spite of the high blood pressure and advancing age of the patient. Yet only this last supposition will account for the many women, and somewhat less numerous men, who have definite hypertension for decades and yet show minimal renal or retinal vascular changes.

Studies of kidneys post mortem and of renal blood flow during life indicate that significant organic narrowing of the renal vascular bed never occurs in most cases of essential hypertension and only terminally in a few. Improvement of both renal and retinal conditions after splanchnicectomy indicates that renal arteriosclerosis is an "accessory factor," not the basic cause, of the disease and that even when well defined this accessory factor is usually of secondary importance. The dogmatic assertion that renal arteriosclerosis, a spontaneous, uncontrollable involution of the vessels, underlies "most" cases of essential hypertension is in flat contradiction to the facts and is equally destructive of the morale of the hypertensive physician, the treatment of his patients and the prosecution of research in this field. While the Council's dissatisfaction with all present methods of therapy is largely justified, the Council is not justified in ignoring the insecure basis of the underlying philosophy of the report itself. The profession should not be given nihilistic dogma without reference to such contrary views as have been ably summarized in the Croonian Lectures for 1941 or to the actual data on the renal vascular bed in hypertension which has been accumulated in recent years:

Kimmelstiel, P.: *Virchows Arch. f. path. Anat.* **290**: 245, 1933.
Smith, H. W.: Harvey Lectures **35**: 166, 1940.
Cox, A. J., Jr., and Dock, William: *J. Exper. Med.* **74**: 167 (Sept.) 1941.
Ellis, Arthur: Natural History of Bright's Disease (Croonian Lectures), *Lancet* **1**: 1 (Jan. 3), 34 (Jan. 10), 72 (Jan. 17) 1942.

WILLIAM DOCK, M.D., New York.
Professor of Pathology, Cornell
University Medical College.

To the Editor:—Reports of toxic reactions and an occasional death following thiocyanate therapy in hypertension tend to emphasize the need for care in the selection of patients for treatment and in their supervision while receiving this drug.

Many of the pharmacologic properties of thiocyanates have been reviewed in the several publications by M. H. Barker: 1. The content of the thiocyanates in the blood is an index of the thiocyanate content of the tissues, and this depends on the intake and rate of excretion through the kidneys. 2. The rate of excretion of thiocyanates from the body is extremely variable. The only correlation is a tendency for the cyanate clearance to be depressed when the urea clearance is low (THE JOURNAL, March 25, 1939, p. 1120).

Thus an important contraindication to the use of thiocyanates in vascular hypertension is seriously impaired renal function. The fatal outcome in the case reported by Russell and Stahl, in THE JOURNAL, August 8, in which thiocyanates were given in a patient with a urea clearance of 27, does not warrant their conclusion "that fatal intoxication may occur following the administration of the usually prescribed amount of the drug." The toxic effects are cumulative in the presence of impaired renal function.

At the hypertension and nephritis clinic of the Jewish Hospital of Brooklyn, we have acquired considerable experience with thiocyanate therapy in a large number of cases and have been favorably impressed with the results.

HARRY MANDELBAUM, M.D., Brooklyn.

To the Editor:—The article by Russell and Stahl published in THE JOURNAL, August 8, does not keep a proper perspective toward the use of thiocyanates in the treatment of essential hypertension. The article failed to emphasize that a patient with hypertension and bad kidneys as evidenced by a urea clearance of 27 per cent of normal, nonprotein nitrogen of 43 mg. per hundred cubic centimeters and 3 plus albuminuria was given the drug, contrary to accepted opinion that this is a dangerous type of case for the use of the drug. The article should also have emphasized even more strongly than the choice of improper case that the drug was continued in unchanged dosage after an excessively high blood level of 15.2 mg. was found. The literature and experience indicate that, when a level above 10-12 mg. occurs, toxicity is around the corner. There is no point in rounding this corner except for purposes of investigation. The choice of proper cases and dosage is similarly true in the use of many toxic drugs, such as digitalis, morphine and insulin.

Thousands of cases have been treated with the thiocyanates without fatality. My own experience also indicates that the determination of the blood concentration, its maintenance at proper levels, decrease of dosage when pronounced drop in blood pressure occurs, all will remove dangers of serious toxicity and

achieve the definite benefits of the drug in uncomplicated essential hypertension. Cardiac or renal failure or threats of failure are accepted contraindications for the use of the drug. Renal failure will cause the retention in the blood of any drug normally excreted through the kidneys.

Finally, the diagnosis of hypertensive encephalopathy with uremia should at least be considered in this case as the cause of the initial onset September 11 of headache, dizziness and mental confusion followed later by delusions, stupor, convulsions, coma and slow pulse. The relatively negative brain at postmortem examination supports this thought. If this is true, venesection might have been tried rather than fluids intravenously.

DAVID AYMAN, M.D., Boston.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Sept. 5, page 65.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Part I.* Various centers, Sept. 14-16. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written. Part I.* Various centers, Feb. 4. Final date for filing application is Nov. 6. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written. Part I.* Various centers, Feb. 13. *Oral. Part II.* May 1943. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral. All Groups.* Chicago, Oct. 8-10. New York, Dec. 13-16. Los Angeles, Jan. 15-16. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and Written.* Chicago, Jan. 9-10. Final date for filing application is Nov. 1. Sec., Dr. Guy A. Caldwell, 3503 Prytania St., New Orleans.

AMERICAN BOARD OF PEDIATRICS: *Written.* Locally, Sept. 18. Sec., Dr. C. A. Aldrich, 707 Fullerton Ave., Chicago.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Final date for filing application is Oct. 1. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Chicago, Nov. 27-29. Final date for filing application is Sept. 30. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF UROLOGY. February 1943 (tentative). Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis.

Kentucky Reciprocity Report

The State Department of Health of Kentucky reports 6 physicians licensed to practice medicine by reciprocity and 1 physician so licensed by endorsement from January 21 through March 19. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1936)	Illinois
University of Illinois College of Medicine		(1920)	Illinois
St. Louis University School of Medicine		(1940)	Missouri
Washington University School of Medicine		(1937)	Missouri
Ohio State University College of Medicine		(1937)	Ohio
Medical College of Virginia		(1933)	Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Meharry Medical College		(1929)	U.S.P.H.S.

Oregon Reciprocity Report

The Oregon State Board of Medical Examiners reports 4 physicians licensed to practice medicine by reciprocity on April 7, 1942. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Columbia University College of Physicians and Surgeons		(1913)	N. Carolina
University of Oregon Medical School		(1937)	Maryland
Jefferson Medical College of Philadelphia		(1940)	Penna.
Woman's Medical College of Pennsylvania		(1937)	New York

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Hospitals: Electric Pad Burn Attributed to Negligence of Student Nurse.—The plaintiff's complaint alleged that he became a patient in the defendant hospital for the purpose of obtaining treatment of his diseased right leg. His physicians decided to amputate the leg above the knee, and in order to prepare the plaintiff for the operation the administration of an opiate to induce a sound sleep was prescribed and an electric pad was directed to be placed on the leg above the knee to keep it warm and to maintain circulation. The pad used could be regulated to three degrees of heat, namely warm, medium and hot. The following morning it was discovered that the pad had been turned on to "hot," rather than to "warm" as directed, and the skin, flesh and nerves of the plaintiff's leg above the knee had been seriously burned. Contending that such injuries were the result of defendant's having retained in its employ an incompetent, incapable and careless nurse, the plaintiff filed suit against the defendant hospital for damages and obtained a judgment in the trial court. The defendant then made a motion for a new trial, which was denied. From this adverse ruling the defendant appealed to the court of appeals of Georgia, division No. 2.

The defendant first contended that the trial court erred in overruling the special demurrer to the plaintiff's allegation that the defendant was negligent "in allowing the plaintiff's leg to be burned and injured as alleged." The court said that the plaintiff's complaint alleged that the servants of the defendant did not properly apply the electric pad to the leg; that in applying such pad they did not follow the instructions of the plaintiff's physician, and that the employee who placed the pad on the leg was a student nurse not properly trained. It was also alleged that the defendant, through its servants, was negligent in placing the pad on the plaintiff's leg in the high or hot position, "which was a dangerous condition of the said pad unless carefully watched," in failing to inspect the pad after it was placed on the leg and in failing frequently to observe the pad and the plaintiff during the night. In these circumstances, the court concluded, the allegation that the defendant was negligent "in allowing the plaintiff's leg to be burned and injured as alleged" was not a conclusion, and was not unsupported by sufficient allegations of fact. Such allegation did not place the defendant in the category of a "guarantor" of the plaintiff against injury while a patient in the hospital.

The defendant then contended that the trial court erred in permitting a lay witness for the plaintiff to testify that she had had experience with electric pads; that she had herself used them on many occasions; that she knew of her own knowledge about a woman who used an electric pad on which the control switch was kept at the low position constantly for a period of three weeks and that such pad did not burn this woman at all within such period, and that in her own experience she had never seen one of the pads burn anybody on low, but if the switch was placed in the high position it would burn the skin and flesh in half an hour or hour. The court pointed out that this witness was not testifying as an expert but was testifying as to her experience and of what she knew as the result of her experience. A nonexpert witness, the court said, may give an opinion as to the safety or danger of a particular appliance where, from familiarity with it or by reason of having seen it operated, the witness has gained a personal knowledge thereof.

Finally, the defendant contended that the nurse who attended the plaintiff was carrying out the orders of the plaintiff's physicians and therefore was not, at that time, an agent or employee of the defendant hospital. The court said that the jury might well have found from the evidence that had the electric pad been placed on the plaintiff's leg as directed and had the attendants and nurses of the defendant hospital maintained the proper observation of the plaintiff and the electric pad during the night the leg would not have been burned. It is well settled, continued the court, that the owner or proprietor of a private

hospital or sanitarium which is operated for profit and not for charity is liable for injuries to patients due to the negligence of nurses or other employees. A private hospital operated for pecuniary profit owes to the patient the duty to use reasonable care for his safety and reasonable skill and diligence in nursing and caring for him. It is the duty of those in charge of the hospital, said the court, to give the patient reasonable care and attention, and to have that knowledge of the necessities of the case which would result from such care and attention and from the possession of ordinary skill in his treatment; the patient is generally admitted to such a hospital under an implied obligation that he should receive such reasonable care and attention for his safety as his condition may require. The court of appeals accordingly concluded that the evidence warranted the jury in finding for the plaintiff and that the trial judge did not err in overruling the defendant's motion for a new trial. The judgment for the plaintiff was accordingly affirmed.—*Piedmont Hospital v. Anderson, 16 S. E. (2d) 90 (Ga., 1941).*

Insurance: Accidental Death Following Hypodermic Injection.—The defendant insurance company agreed to pay double indemnity benefits if the insured died from bodily injuries effected through external, violent and accidental means and of which there was a visible contusion or wound on the exterior of the body, provided death did not result from disease. On the death of the insured, the beneficiary sought to recover the double indemnity benefits and the trial court entered a judgment dismissing her complaint at the close of her case. She accordingly appealed to the United States circuit court of appeals, second circuit.

The insured was 52 years of age at the time of his death and prior to July 3, 1939 had regularly enjoyed good health. During that day he had been drinking. Early in the evening a physician who called to see his invalid mother, finding her somewhat disturbed by his exhilaration, urged him to go to bed. On his request for a sedative, the physician administered to him a hypodermic injection of "a quarter of morphine and $\frac{1}{150}$ of atropine." The next morning his wife found him lying on his back in the same position in which he had been left the night before. He was unconscious and breathing irregularly, his pulse was extremely weak, his pupils were contracted and his face was almost black. He was given a stimulant and moved to a hospital, where he died fifteen days later from "putrid empyema" of the right side—a pulmonary infection caused by an attack of aspiration pneumonia. At the trial the plaintiff produced expert testimony to the effect that aspiration pneumonia may be contracted from nothing more than a drainage into the lungs of mucus and saliva, which ordinarily contain germs of the disease in infectious quantities, and that it is not dependent on a victim's peculiar susceptibility. Furthermore, such drainage will occur in one whose cough reflex is paralyzed, particularly while he is resting in a supine position. The insured's unconsciousness on the night of his intoxication fulfilled both of these conditions, and the evidence produced by the plaintiff was sufficient to warrant a jury in finding that the hypodermic injection was the sole proximate cause of his unconsciousness. The immediate cause of the insured's death, admitted the court of appeals, was pneumonia, which would itself fall within the excluded category of "disease" rather than the protected category of "bodily injuries." The effects of the pneumonia, such as empyema, however, were unquestionably "internal injuries" and they, as well as the pneumonia itself, were merely intervening links in a direct chain of causation beginning with the hypodermic injection and ending with the insured's death. It has been held in similar circumstances, the court continued, that the event inducing the disease, not the disease itself, was the proximate cause. The hypodermic injection was an "external" and "violent" means within the meaning of the double indemnity clause. It clearly would have been an "accidental means" if it had led to a fatal blood poisoning. That it led to pneumonia instead seemed to the court to be entirely irrelevant to its accidental nature. In either instance, the administration of the injection was intentional and deliberate, but the result was unforeseen and undesired. Such miscarriage of a supposed remedy occurred in either case, not because the insured did, or submitted to, anything unintended at the time but because acts willingly performed bore unknown potentialities. We think, concluded the court, that, on the proof offered, the hypodermic injection could be found to have been the "accidental means" of the insured's fatal injuries and that a judgment of dismissal at the close of the plaintiff's evidence was improper. The judgment for the defendant was accordingly reversed and the cause remanded for further proceedings. —*Simpson v. Travelers Ins. Co., 121 F. (2d) 683 (1941).*

Workmen's Compensation Acts: Suicide from Brooding Over Pain of Industrial Injury Not Compensable.—Suicide while insane, said the court of civil appeals of Texas, Fort Worth, of a workman who had been injured in the course of his employment may be compensable under the Texas workmen's compensation act if the insanity results from a compensable accident and not from a brooding over the injury or other causes. Thus when there follows as a direct result of the accident an insanity of such violence as to cause the victim to take his own life through an uncontrollable impulse or in a delirium or frenzy without conscious volition to produce death, there is a direct and unbroken causal connection between the physical injury and the death. However, when the suicide is the result of voluntary and willful choice determined by a moderately intelligent mental power with knowledge of the purpose and effect of the act, even though dominated by a disordered mind, a new and independent agency breaks the chain of causation. In the present case, the court denied compensation under the following facts: The employee suffered a painful foot injury from stepping on a nail or other sharp object. Excruciating pain persisted for about six months and the employee, in his own words, "to get out of this pain," while, in the opinion of the court, sane and able to appreciate the consequences of his act and not while in "any state of excitement or delirium or frenzy," drank a mixture of concentrated lye, cleaning fluid and insect powder, from which he subsequently died. The undisputed evidence in this case, said the court, shows that the employee purposely and intentionally drank the poisonous solution, that he knew what he was doing and that he knew and intended that the fatal effects should follow. Even though the employee considered that his pain was unbearable and even though he was willing to depart this life in order to escape it, still there can be no recovery under the Texas workmen's compensation act if the suicide was the result of voluntary and wilful choice determined by a moderately intelligent mental power with knowledge of the purpose and effect of the act, even though dominated by a disordered mind.—*Traders and General Ins. Co. v. Jones, 160 S. W. (2d) 569 (Texas, 1942).*

Optometrists: Liability for Prescribing Improper Glasses.—The plaintiff, a 10 year old boy, was taken to the defendant optometrist, who examined the boy's eyes and prescribed glasses. After wearing the glasses for several weeks, the plaintiff returned to the defendant with the complaint that severe headaches, nausea and "deep-seated pain in his eyes" had developed. The defendant reexamined the boy's eyes, found that the glasses were in accordance with his previous prescription and advised him that in a short time the headaches and nausea would subside. After another week or ten days, during which time the headaches and nausea continued, the plaintiff consulted an oculist for relief. In a subsequent suit for damages against the defendant optometrist, the plaintiff contended, among other things, that his eyesight had been permanently impaired because of the improper glasses which had been furnished to him. From a judgment in favor of the plaintiff in the trial court, the optometrist appealed to the court of appeals of Georgia, division No. 2.

The defendant contended that there was not sufficient evidence to sustain the verdict of the jury. The court of appeals said that on the basis of the evidence introduced in the case the jury was authorized to find that the glasses prescribed by the defendant were not suited to the plaintiff's eyes, that they were not corrective, that they did not remedy the impaired vision and that as a result of wearing such glasses the plaintiff suffered headaches and nausea. The jury was also authorized to find that the defendant was negligent in his examination and treatment of the plaintiff's eyes and that if the defendant had properly examined and treated the plaintiff's eyes, and had fitted them with proper and suitable glasses, the impaired vision

would have been corrected and the plaintiff would not have suffered pain as a result of wearing the glasses. In these circumstances the court concluded that it could not say as a matter of law that the defendant was not negligent and that he did exercise proper care and skill in examining the plaintiff's eyes in prescribing the glasses and fitting them. The defendant should certainly exercise skill and care in the examination of a patient's eyes, held the court, and in the prescribing and fitting of glasses, and whether or not the facts of this case showed negligence on the part of the defendant in his examination and treatment of the plaintiff was for the jury. In determining what constitutes ordinary care and what constitutes negligence, the court also concluded, the jury would not be confined to the testimony of an optometrist as to what constitutes ordinary care and skill in the examination and treatment of a person's eyes, including the fitting of glasses. The court therefore found that there was sufficient evidence to support the jury's findings and that the trial court did not err in denying a new trial. Accordingly, the judgment in favor of the plaintiff was affirmed.—*Kahn v. Shaw, 16 S. E. (2d) 99 (Ga., 1941).*

Autopsies: Liability of Private Mortuary for Permitting Coroner's Physician to Perform Autopsy.—A violent explosion occurred at the plaintiff's home and a policeman, hearing the noise, ran to the scene, broke into the house and found the deceased, plaintiff's husband, lying face down on the kitchen floor. There was a cut on his head, blood was coming from his ears, and there was an odor of gas in the house. The policeman carried the body outside and called the "inhalator squad," but the man was dead. No physician was in attendance when the deceased died, no one saw him die and no one knew how or when he died, the cause of the explosion or what exploded. At the plaintiff's direction the body was taken to the defendant mortuary to be prepared for burial. The coroner's physician, under instructions from the county attorney's special investigator, visited the mortuary, examined the body and found it necessary to perform an autopsy in order to ascertain the cause of death. After apparently being authorized by the the special investigator, he performed the autopsy that same day, the cause of death being certified as inhalation of carbon monoxide gas. No coroner's jury was impaneled. There was no question, however, but that the autopsy was performed by the coroner's physician acting in his official capacity and that it was done in a decent and scientific manner. Subsequently the plaintiff commenced a suit for damages against the defendant mortuary for allowing the autopsy to be performed without her consent. From a judgment in favor of the plaintiff, the defendant appealed to the Supreme Court of Nebraska.

The plaintiff contended that she had the right to the possession of the dead body of her husband in the same condition it was in when death intervened; that an autopsy unauthorized by her, or by some other person having authority so to direct by law, is an invasion of her rights, and that a coroner may not order an autopsy except under the circumstances prescribed by statute and only after inquest. The Supreme Court traced the legislative history of the coroner's office in Nebraska and found that the duties of the historical office of coroner had been transferred to the county attorney, who is required to hold an inquest on the body of any person who might have died by unlawful means. The calling of a jury in such instances, however, was within the discretion of the county attorney and an investigation made by the county attorney, without the assistance of a jury, was not necessarily in contravention of law. An autopsy, continued the Supreme Court, is required and justified when necessary to determine that the cause of death of a human being did not involve unlawful means and when necessary to secure the information that will enable the county attorney fully to perform the duties enjoined on his office in reference thereto. It is in all respects a matter of public interest in which public safety is necessarily involved. Under these conditions, the county attorney may legally order an autopsy to be made when, in his judgment, that is the appropriate means of ascertaining the cause of death, and he may do so without consent of the family, for such power is incident to the county attorney's official duty. Jurisdiction to hold an inquest, continued the court, is conferred on a county attorney by the finding and custody in his county of the body of a person who has apparently come to his death by violent, mysterious or unknown means. The Supreme Court therefore concluded that the county attorney had jurisdiction to hold an inquest in the present case without the intervention or assistance of a jury; that this decision as made by him was sustained by the facts within his knowledge at the time it was ordered and constituted a reasonable exercise of the powers of his office and that the acts of his statutory assistants in connection therewith were legally performed and required by the public policy of the state. Under such circumstances, the Supreme Court said, the defendant mortuary did not transgress the legal duties it owed the plaintiff, since the act of the coroner's physician was clearly within the authorization of law. Accordingly the judgment for the plaintiff was reversed and the cause dismissed.—*Sturgeon v. Crosby Mortuary, Inc., 299 N. W. 378 (Neb., 1941).*

Privileged Communications: Introduction of Death Certificate as Waiver of Privilege as to Attending Physician.—The introduction in evidence, said the St. Louis court of appeals (Missouri), by a beneficiary suing on a policy of insurance of the certificate of death of the insured, signed by the attending physician, waives the privilege arising from the confidential relation between the physician and his patient. Thereafter the attending physician may be required to testify with respect to information which he has acquired from the patient while attending him in a professional character, which information, except for the fact of waiver, the physician could not be compelled to disclose in court. Furthermore, by introducing the certificate of death in evidence the plaintiff-beneficiary likewise waives the privilege with respect to statements made in appropriate hospital records by the physician who executed the death certificate. When several physicians have attended a patient at or about the same time and the patient calls one of them to testify as to what was then learned about his condition, he cannot object to the testimony of the others as to the same matter. And, concluded the court of appeals, we see no reason why this rule should not be applicable to the statements of physicians in hospital records.—*Bouligny v. Metropolitan Life Ins. Co., 160 S. W. (2d) 474 (Mo., 1942).*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 11-14. Dr. W. L. Benedict, 102 Second Ave., S.W., Rochester, Minn., Acting Secretary.

American Academy of Physical Medicine, Boston, Oct. 14-17. Dr. Herman A. Osgood, 144 Commonwealth Ave., Boston, Secretary.

American Clinical and Climatological Association, Princeton, N. J., Oct. 12-14. Dr. James Bordley, Johns Hopkins Hospital, Baltimore, Secretary.

American Hospital Association, St. Louis, Oct. 12-16. Dr. Bert W. Caldwell, 18 East Division St., Chicago, Secretary.

American Public Health Association, St. Louis, Oct. 27-30. Dr. Reginald M. Atwater, 1790 Broadway, New York, Executive Secretary.

American Roentgen Ray Society, Chicago, Sept. 15-18. Dr. H. Dabney Kerr, University Hospitals, Iowa City, Secretary.

Colorado State Medical Society (House of Delegates only), Denver, Sept. 23-24. Mr. Harvey T. Sethman, 1612 Tremont Place, Denver, Executive Secretary.

Delaware, Medical Society of, Dover, Oct. 13-14. Dr. W. O. La Motte, Medical Arts Bldg., Wilmington, Secretary.

District of Columbia, Medical Society of the, Washington, Sept. 29-Oct. 1. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Secretary.

Idaho State Medical Association, Sun Valley, Sept. 16-19. Dr. F. B. Jeppesen, 105 North 8th St., Boise, Secretary.

Indiana State Medical Association, French Lick, Sept. 29-Oct. 1. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Kentucky State Medical Association, Louisville, Sept. 27-Oct. 1. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 22-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing, Secretary.

Mississippi Valley Medical Society, Quincy, Ill., Sept. 30-Oct. 2. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Nevada State Medical Association, Reno, Sept. 24-26. Dr. Horace J. Brown, 120 North Virginia St., Reno, Secretary.

Omaha Mid-West Clinical Society, Omaha, Oct. 26-30. Dr. J. D. McCarthy, 1036 Medical Arts Bldg., Omaha, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 5-8. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.

Vermont State Medical Society, Montpelier, Oct. 1. Dr. Benjamin F. Cook, 154 Bellevue Ave., Rutland, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 5-7. Miss Agnes V. Edwards, 1200 East Clay St., Richmond, Secretary.

Wisconsin, State Medical Society of, Milwaukee, Sept. 14-16. Mr. Charles H. Crownhart, 110 East Main St., Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1932 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

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Future of Orthopsychiatry. J. Kasanin, San Francisco.—p. 381.
Scope of Clinical Psychology in Child Guidance. W. M. Mathews, New Orleans.—p. 388.
Present and Future Diagnostic Role of the Clinical Psychologist. S. H. Tulchin, New York.—p. 397.
Simple Method for Rapid Estimation of Intelligence in Adults. M. Brown, Chicago.—p. 411.
Measurement of Adjustment by Psychometric Pattern Technics: Its Need in Selective Service Program. S. W. Bijou, Northville, Mich. —p. 435.
Extrinsic Factors in Treatment of Anxiety States in Children. J. Kasanin, J. Solomon and Pearl Axelrod, San Francisco.—p. 439.
Some Uses of Military Authority as Psychotherapy. R. P. Kemble, Danville, Ky.—p. 462.
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Collaborative Psychiatric Therapy of Parent-Child Problems. S. Szurek, Adelaide Johnson and E. Falstein, Chicago.—p. 511.
Explorations in Humanizing Relations of Key People in Industry. H. Meltzer, St. Louis.—p. 517.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

47:825-978 (June) 1942

*Roentgen Manifestations of Adult Toxoplasmosis. L. R. Sante, St. Louis. —p. 825.
*Toxoplasmic Encephalomyelitis: VIII. Significance of Roentgenographic Findings in Diagnosis of Infantile or Congenital Toxoplasmosis. C. G. Dyke, A. Wolf, D. Cowen, B. H. Paige and J. Caffey, New York.—p. 830.
Sphenoidal Fissure: Anatomic, Roentgenologic and Clinical Study. K. Kornblum and G. R. Kennedy, Philadelphia.—p. 845.
Calcification of Vas Deferens. J. H. Marks and D. P. Ham, Boston. —p. 859.
*Atelectasis Following Pneumonia in Children. G. M. Wyatt, Boston. —p. 864.
Absence of Hilar Shadow: Diagnostic Sign in Rare Congenital Cardiac Malformations (Truncus Arteriosus Solitarius with Heterotopic Pulmonary Blood Supply). G. Danelius, Chicago.—p. 870.
Syphilis of Lung. C. G. Lyons, A. J. Brogan and J. G. Sawyer, Hines, Ill.—p. 877.
Hyperparathyroidism. C. F. Sherman, Fayetteville, N. C., and D. E. Nolan, Wichita, Kan.—p. 882.
Experimental Production of Congenital Skeletal Abnormalities in Offspring of Rats Fed Deficient Diet. J. Warkany and Rose C. Nelson, Cincinnati.—p. 889.
Fallopian Tube Visualization as Treatment for Sterility. C. L. Martin, Dallas, Texas.—p. 894.
Methods and Effects of Preoperative Irradiation in Treatment of Osteogenic Sarcoma. N. L. Higinbotham and B. L. Coley, New York.—p. 902.
Radium Treatment of Cancer of Bladder: Report of 267 Cases. C. C. Herger and H. R. Sauer, Buffalo.—p. 909.
Cancer of Rectum and Sigmoid, with Special Reference to Disease as Seen in Old Age. W. M. Shedden, Boston.—p. 916.

Roentgen Manifestations of Adult Toxoplasmosis.—Sante describes pulmonary roentgenographic lesions of 2 adult patients with toxoplasmosis reported by Pinkerton and Henderson. The early pulmonary manifestations present an appearance of acute pulmonary congestion with edema, accentuation of the hilar shadows with an increase in the size and number of the markings radiating outward from the hilum and a blotchy, blurred appearance. At this stage the picture is similar to that of passive congestion with pulmonary edema but without cardiac enlargement. At a more advanced stage the picture changes. The markings radiating outward into the lungs are no longer the predominating features; they become overshadowed by the increasing interstitial infiltration, and alveolar exudation. The composite picture is one of conglomerate areas of infiltration crowding on one another and giving the appearance of irregular blotchy consolidation. The site of greatest involvement seems to be the lower lobes. The roentgen picture at this stage might be simulated by any of the atypical pneumonias or mycotic infections. Extreme pulmonary edema from any other cause might be mistaken for this condition. Toxoplasmosis, however, is more acute and the symptoms are more grave. Prostration is extreme, and toward the end of the disease the fever is high, and dyspnea and cyanosis are intense. Essentially, the process seems to be an acute interstitial pneumonitis with associated pulmonary congestion and edema.

Toxoplasmic Encephalomyelitis.—Cerebral calcification and internal hydrocephalus are prominent features in necropsies of infantile or congenital toxoplasmic encephalomyelitis. Dyke and his associates believed that its identification by roentgen examination might be helpful in clinical diagnosis. They examined 10 cases of this disease. In 4 the diagnosis was not made until necropsy, while in 6 it was made clinically. Diffuse intracerebral calcification is the most striking roentgen evidence of infantile or congenital cerebral toxoplasmosis. It usually occurs in small flecks, 2 mm. in diameter, or in streaks particularly in the basal ganglions or thalami. Intracerebral calcification was observed in 8 of 9 patients whose skulls were roentgenographed. There was evidence of increased intracranial pressure in 4, while 3 subjected to pneumoencephalography showed decided internal hydrocephalus. When multiple cerebral calcification is exhibited in infants and young children, toxoplasmosis must be seriously considered. Pneumonitis may occur; in 1 case Toxoplasma was demonstrated at necropsy to be the cause of pulmonary inflammation.

Atelectasis Following Pneumonia in Children.—During 1939 among the 135 patients with pneumonia examined in the department of roentgenology of the Infants' and the Children's Hospitals there were 26 instances of atelectasis. The ages of these 26 patients ranged from 3 weeks to 10 years 10 months; 17 were less than 2 years of age. The duration of acute illness at the first roentgen examination varied from two days to two weeks; the average was five days. In addition to increased density of the involved lung Wyatt saw three other roentgen signs: (1) displacement of the heart and mediastinum toward the area of increased density in 9 patients, (2) displacement and curving of an interlobar septum toward the area of increased density in 24 patients and (3) close spacing of large bronchovascular markings to form a curvilinear triangle of increased density within a lobe in 6 patients. In some patients the atelectasis as seen in a lateral view roentgenogram provided an explanation for clinical symptoms which were not consistent with the apparent dense infiltration observed in the posteroanterior film, and in others it offered an explanation of symptoms which would otherwise have been interpreted as due to recurrent pneumonia. The treatment was symptomatic, accompanied by chemotherapy in 10 instances. Clinical recovery was uneventful, except that of 2 patients, in 1 of whom bronchoscopic aspiration was required while in the other empyema had developed. The atelectasis usually disappeared in one to two weeks. All such patients should be followed roentgenologically until clearing is complete because of the ever present possibility of foreign body or bronchiectasis.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

26:397-528 (July) 1942

Osseous Syphilis: Confusion in Diagnosis; Report of Two Cases of Osteomyelitis of Late Syphilis. L. J. Alexander and A. G. Schoch, Dallas, Texas.—p. 397.
*Treatment of Syphilitic Primary Optic Atrophy. J. E. Moore, R. D. Hahn, A. C. Woods and Louise Sloan, Baltimore.—p. 407.
*Diagnosis of Lymphogranuloma Venereum: Evaluation of Virus Antigen (Lygranum) Prepared from Culture on Chick Embryo. S. J. Axelrod, Chattanooga, Tenn.—p. 474.
*Anthiomaline: Further Evaluation of Its Effect in Lymphogranuloma Venereum. B. Shaffer, Philadelphia.—p. 489.
Occurrence of Zone Reactions in Flocculation Tests for Syphilis. Ruth M. Myers and C. A. Perry, Baltimore.—p. 494.
Third Generation Syphilis: Review of Recent Literature and Report of Probable Case. H. Beerman, Virgene Scherer Wammock, Philadelphia, and Kathryne Bause Magnuson, Baltimore.—p. 504.

Syphilitic Primary Optic Atrophy.—From 1918 to 1940 Moore and his co-workers treated 250 cases of syphilitic primary optic atrophy at the Syphilis Clinic of the Johns Hopkins Hospital and in private practice. The relationship of early treatment to the development of the optic atrophy could be determined in 235, and only 3 (1.3 per cent) had received anything approach-

ing adequate therapy; only 32 (13.6 per cent) had received any arsphenamine, while 188 (80 per cent) had had no treatment. These data show that adequate treatment of early syphilis nearly completely protects against the development of optic atrophy. Primary optic atrophy occurred in at least 8 per cent of all patients with acquired neurosyphilis. The incidence was still higher in the neurosyphilitic Negro. No significant decrease in its relative incidence was evident during the last two decades. The cerebrospinal fluid was normal in nearly 7 per cent. Primary optic atrophy occurred more than twice as frequently in syphilitic tabes as in other types of neurosyphilis. It was rare in uncomplicated dementia paralytica. The only clinical manifestations in many patients were primary optic atrophy and pupillary changes. The therapeutic results, subjected to statistical analysis by the life table method estimated from anamnestic data and influenced by a multiplicity of extraneous factors, reveal that blindness occurred in 28 per cent of untreated patients within one year of onset of symptoms, in 50 per cent within two years and in almost 65 per cent within three years. Six years after onset 75 per cent were blind, and after twelve years less than 90 per cent were blind. Routine antisyphilitic treatment failed to alter significantly the spontaneous course of the untreated disease. Subdural therapy precipitated blindness in almost 10 per cent of patients. Only 9 per cent of patients given malaria therapy were blind at one year after onset of symptoms, 14 per cent at two years and 18 per cent at three years. Thereafter, up to fifteen years, no additional blindness ensued. It was estimated that to the 25 per cent of selected patients who would retain more than 10/200 vision ten years after onset of symptoms fever therapy added an additional 57 per cent. The optic atrophy was unilateral in only 4 per cent at the initial examination. The variation in the course of optic atrophy could not be accounted for by differences in treatment alone. At least one additional factor which determined the ultimate outcome was the type of field defect. The prognosis was less favorable in the presence of central or paracentral scotomas. Adhesive arachnoiditis was not found by Dandy in 3 patients at intracranial exploration. No beneficial or deleterious effect followed the operation.

Diagnosis of Venereal Lymphogranuloma.—In evaluating the yolk sac virus antigen of venereal lymphogranuloma, Axelrod performed one hundred and fifty tests with it and the normal chick embryo control. Of the 151 patients with rectal stricture, syphilitic pregnant women with hyperglobulinemia, with or without hyperproteinemia, and with inguinal granuloma tested with the virus antigen, 34 gave positive and 20 doubtfully positive results. Approximately 10 per cent of the positive tests were pustular or vesicular reactions subsequently resulting in ulceration. The use of the normal chick embryo control in these 54 resulted in one positive and two doubtfully positive reactions. The tests of 36 patients with inguinal lymphadenitis were positive in 14, doubtfully positive in 8 and negative in 14. Tests performed on 26 patients with rectal stricture resulted in sixteen positive, seven doubtfully positive and three negative reactions. Of fifty tests performed on random ward patients two were positive, two doubtfully positive and forty-six negative. One patient giving a positive reaction had no history of venereal lymphogranuloma; another was a Negro who had had an inguinal bubo which had ruptured and drained spontaneously about ten years previously. Of the 2 patients showing doubtfully positive reactions, 1 had a history of a bubo which had ruptured and drained spontaneously many years before. Three of twenty-three tests performed on pregnant women under antisyphilitic treatment were positive, two were doubtfully positive and eighteen were negative. Two of the women with positive reactions and 1 with a doubtful reaction had rectal strictures of the inflammatory type. Four infants of the mothers with positive tests, when tested neonatally, had negative reactions. The results of the virus antigen are consistent with the history and/or the clinical signs in a high percentage of cases.

Anthiomaline for Venereal Lymphogranuloma.—Shaffer used anthiomaline (lithium antimoniothiomalate) intramuscularly in a dosage of 0.12 to 0.3 Gm. in aqueous solution for the treatment of 33 patients with venereal lymphogranuloma. The injections were repeated two to three times a week for twelve to twenty injections. The only important toxic effect and one which limits its dosage is antimony "rheumatism," an arthralgia and myalgia which appear several hours after injection and last for one to several days. This effect can always be minimized by reducing the dose. After an average of eighteen injections 8 patients were considered cured, 16 improved and 9 not benefited. Anthiomaline was not a completely satisfactory preparation for all forms of venereal lymphogranuloma; it was highly effective in inguinal adenitis. In the anogenital syndrome it was not curative, but it caused a temporary arrest or recession of the active disease process in most patients. Anthiomaline produced effects that were as satisfactory as those obtained with the sulfonamides, although the action of the latter appeared more rapid. However, the hazardous reactions that occasionally follow the sulfonamides are not seen with anthiomaline. The alternate or even the concomitant use of both preparations might be efficacious when either alone might fail.

Anesthesiology, New York

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*Addison's Disease: Evaluation of Synthetic Desoxycorticosterone Acetate Therapy in 158 Patients. G. W. Thorn, S. S. Dorrance and E. Day, Baltimore.—p. 1053.
*Primary Splenic Neutropenia: Newly Recognized Syndrome Closely Related to Congenital Hemolytic Icterus and Essential Thrombocytopenic Purpura. B. K. Wiseman and C. A. Doan, Columbus, Ohio.—p. 1097.
Nonoperative Results in Ninety Patients with Abnormal Cholecystograms. S. D. Blackford, R. M. Bird Jr. and S. W. Casscells, University, Va.—p. 1118.
Heart Strain: Critical Review; Development of Physiologic Concept. A. E. Parsonnet and A. Bernstein, Newark, N. J.—p. 1123.
*Relationship of Upper Respiratory Infections to Rheumatic Activity in Chronic Rheumatic Heart Disease. I. R. Juster, Glens Falls, N. Y.—p. 1137.
*Periarteritis Nodosa: Report of Five Cases. M. M. Banowitch, S. H. Polayes and R. Charet, Brooklyn.—p. 1149.
Clinical Value of Sternal Bone Marrow Puncture. T. H. Mendell, D. R. Meranze and T. Meranze, Philadelphia.—p. 1180.
Pathologic Study of Significance of Systolic Murmur. M. S. Rednick, Ossining, N. Y.—p. 1197.
Neuroblastoma (Sympathoblastoma or Neurocytoma) of Suprarenal Medulla: Report of Three Cases. R. M. Thompson, Hot Springs National Park, Ark.—p. 1206.

Addison's Disease.—Of the 64 patients with Addison's disease who have been under the observation of Thorn and his associates and of the 94 treated with synthetic desoxycorticosterone acetate by other physicians elsewhere during the last three years approximately 50 per cent have been rehabilitated. In this series 148 were treated by subcutaneous implantation of crystalline pellets. Tuberculosis appeared to be the etiologic factor of the adrenal cortical insufficiency in less than 50 per cent. Approximately 80 per cent were between 20 and 50 years of age; 56 per cent were males. The presenting symptoms were weakness and fatigability in 100 per cent, increasing pigmentation in 94 per cent and anorexia in 91 per cent. Approximately 90 per cent required 1 to 5 mg. daily of the substance in oil intramuscularly or 2 to 10 pellets (125 mg. each) implanted subcutaneously. The mortality rate during the average one and seven-tenths years of therapy was 15.4 per cent; 46 per cent

of the deaths were due to infection and 29 per cent to cardiovascular disease. Of the authors' 64 patients, 48 were definitely improved and 56 per cent of the male patients were restored to full time employment. Abnormalities in carbohydrate metabolism were exhibited by 75 per cent, abnormal electrocardiograms by 60 per cent, abnormal electroencephalograms by 69 per cent, abnormalities in creatine metabolism by 69 per cent and reduced hippuric acid excretion by all. These abnormalities persisted despite continued therapy with desoxycorticosterone acetate. Overdosage phenomena were transient hypertension, transient edema, circulatory insufficiency, tendon and muscular contractions and transient peripheral motor paralysis. Practically all could be explained on the basis of excessive retention of sodium and chloride. Therefore, supplementary sodium chloride medication, if used at all, must be regulated carefully.

Primary Splenic Neutropenia.—Wiseman and Doan report 5 cases of what they believe to be a heretofore unrecognized syndrome characterized by neutropenia and splenomegaly as a result of a pathologically altered function of the normal spleen. The "common denominator" of all was profound granulopenia, panhyperplasia of the marrow and splenomegaly. Varying degrees and combinations of hemolytic anemia and thrombocytopenic purpura were encountered and coincidentally corrected, that is apparently permanently cured, by removal of all splenic tissue, and the patients were restored to normal hemolytopoietic equilibrium. Although the syndrome may superficially resemble Banti's syndrome, Felty's syndrome, subleukemic myeloid leukemia, hypoplastic anemia, malignant neutropenia or certain types of chronic infection, it is a separate and distinct entity based solely on splenic dysfunction. In this respect primary splenic neutropenia is more closely related to congenital hemolytic icterus and essential thrombocytopenic purpura. The essential diagnostic criteria are the presence of an easily palpable nontender spleen, a severe neutropenic leukopenia with variable even though slight anemia, and thrombocytopenia and panhyperplasia including the myeloid elements without maturation arrest of pathologic alterations in the bone marrow. These criteria justify the therapeutic test of splenectomy.

Chronic Rheumatic Heart Disease.—Juster tried to ascertain whether infection of the upper part of the respiratory tract initiated rheumatic activity or complicated a preexisting active process. To this end he observed 222 children 5 to 15 years of age for three years. Of the patients 85 per cent experienced a total of two hundred and sixteen upper respiratory infections. The seasonal incidence was similar to that observed in rheumatic and nonrheumatic subjects. There was a direct relationship between the seasonal incidence of such infection and rheumatic activity. The leukocyte curves of the patients after being separated into four groups, according to the classification of rheumatic activity, and studied in relation to upper respiratory infections showed that in the inactive group upper respiratory infections were not followed by leukocytosis, whereas in the group showing activity of first, second and third degree, when persistent leukocytosis followed upper respiratory infections, it was usually preceded by a leukocytosis of varying periods. This indicated the existence of a preexisting rheumatic activity. In many, particularly in those with second and third degree activity, the leukocytosis became definitely elevated within one to three weeks after the respiratory infection. A latent period was often mentioned prior to a recurrence. When this occurred, preexisting rheumatic activity was usually present. The data suggest that approximately 60 per cent more rheumatic activity exists in the subclinical form than is recognized by clinical manifestations of the disease.

Periarteritis Nodosa.—More cases of periarteritis nodosa would be diagnosed, according to Banowitch and his co-workers, during life if the clinical pathologic changes were properly appreciated. They report 5 cases they have encountered at the Cumberland Hospital during the last two years; in 4 the diagnosis was made before death. The changes have as a common underlying process an arteritis. The following complications of arteritis are encountered: necrosis of a vessel wall with hemorrhage, thrombosis of arteries with hemorrhagic or anemic infarctions, aneurysmal dilatation of the arterial walls with secondary changes and replacement fibrosis of thrombi and tissues destroyed by the foregoing secondary changes. Varying degrees of cirrhosis of the liver were present in all cases. The process most likely represented healed lesions of panarteritis. Lobular pneumonia, present in most of the cases, appeared to be a terminal event and without any special significance. Periarteritis nodosa is to be considered in any continued illness, and, while the symptoms may be related to all the organs involved, no symptoms of the disease may be present. Of the 106 cases reported in the English literature antemortem diagnosis was made in 30, including the authors' 4. At times the diagnosis may be verified by biopsy of a subcutaneous nodule or muscle, examination of a surgical specimen or laparotomy. In 1939, 5 of 101 patients were known to be alive. A patient may survive if the disease remains localized in some organ such as the appendix or, if in a vital organ, it progresses to the healed stage without producing functional insufficiency. All the authors' patients died. There is no specific treatment.

Archives of Dermatology and Syphilology, Chicago

46:1-186 (July) 1942

Epithelioma of Skin: Manner of Growth; Histologic Study of Whole Tumor Sections. R. L. Sutton Jr., Kansas City, Mo.—p. 1.
Tinea Capitis with Infection of Eyelashes: Report of Case. R. M. Montgomery and Esther A. Walzer, New York.—p. 40.
Bacteriostatic Effect of Sulfathiazole in Various Ointment Bases. E. A. Strakosch and Valerie M. Olsen, Minneapolis.—p. 44.
Acanthosis Nigricans Associated with Carcinoma of Lung. O. L. Levin and H. T. Behrman, New York.—p. 54.
Properties of Human Skin Revealed by Fluorescence Microscopy: Normal Skin; Vitamin A Content of Skin. T. Cornbleet and H. Popper, Chicago.—p. 59.
Warts: Statistical Study of 921 Cases. R. H. Rulison, New York.—p. 66.
Contact Dermatitis Due to Codeine. R. B. Palmer, Lincoln, Neb.—p. 82.
Weltmann's Serum Coagulation Reaction in Cases of Dermatoses and of Syphilis. K. Steiner, New York.—p. 87.
Histopathology of Skin in Pellagra. R. A. Moore, St. Louis; T. D. Spies, Birmingham, Ala., and Zola K. Cooper, St. Louis.—p. 100.
*Treatment of Senile Pruritus with Androgens and Estrogens. S. Feldman, J. Pollock and A. R. Abarbanel, New York.—p. 112.
*Intensive Arsenotherapy of Early Syphilis: Follow-Up Report on Ten Day Syringe Method of Treatment. A. G. Schoch and L. J. Alexander, Dallas, Texas.—p. 128.
Incidence of Tuberculosis of Skin. E. Gahan, New York.—p. 130.
Congenital Syphilis Acquired by Fetus Before Appearance of Chancre in Mother. W. Bickers, Richmond, Va.—p. 135.

Androgens and Estrogens for Senile Pruritus.—Feldman and his collaborators used estrogen and androgen for treating senile vulvovaginitis, leukoplakia and kraurosis vulvae and their accompanying pruritus in 16 patients. The first 12 who have been treated long enough for the results to be convincing have obtained uniformly good results; the other 4 will no doubt also have a completely favorable response. Several considerations impelled the authors to treat senile pruritus in the female with testosterone propionate and in the male with estrogens. To guard against error in estimating the authenticity of the effect of the endocrine substances on senile pruritus, several patients whose itching returned after an intermission in the endocrine medication were given injections of sesame oil or 1 per cent solution of procaine hydrochloride. During this control therapy the itching in each remained stationary or increased in intensity. This treatment of senile pruritus cannot be regarded as a cure. The method exerts a maintenance effect on persons with an endocrine deficiency. The length of treatment and the dose vary with each patient: 10 mg. of testosterone propionate or 1 mg. of estradiol dipropionate constitutes a safe dose. There is apparently no ill effect from the medication except for the local effect of estrogens on the female sex organs; uterine bleeding and painful nipples. This can be counteracted by combining an estrogen with an androgen (testosterone propionate).

Intensive Arsenotherapy of Early Syphilis.—To date Schoch and Alexander have treated more than 350 patients with early syphilis by the intensive arsenotherapy; 208 were treated by the ten day syringe method, which consists in giving 120 mg. of mapharsen daily for ten consecutive days by rapid syringe injection. The remaining 142 patients were given smaller doses over a longer time. Hemorrhagic encephalitis was encountered three times. It resulted in 1 death. One hundred and three of the patients have been under close observation for six to eighteen months and in 77 per cent satisfactory results (the patients became clinically and serologically well) have been obtained. Results in 11 per cent are pending (the patients are

clinically well but residual reagin in the blood is still present at the time of writing) and in 12 per cent the treatment was a failure. The failures consist of 3 patients with infectious relapses, 1 with periostitis, 6 with serologic relapses and 2 with positive serologic reactions of the spinal fluid.

Archives of Otolaryngology, Chicago

35:845-1010 (June) 1942

*Use of Radium in Treatment of Deafness by Irradiation. E. B. Emerson Jr., A. H. Dowdy and C. A. Heatly, Rochester, N. Y.—p. 845.
Labyrinthine Dropsy and Ménière's Disease. J. R. Lindsay, Chicago.—p. 853.
Lipoma of Left Main Bronchus: Report of Case and Review of Literature. P. P. Vinson and W. E. Pembleton, Richmond, Va.—p. 868.
Studies on Pupils of Pennsylvania School for the Deaf: IV. Mechanism of Inheritance of Deafness. W. Hughson, A. Ciocco, Abington, Pa., and C. E. Palmer, Bethesda, Md.—p. 871.
Estrogenic Implants in Treatment of Atrophic Rhinitis. L. K. Rosenvold, Los Angeles.—p. 883.
Hypodynamia Laryngis. M. S. Lloyd, New York.—p. 893.
Electroaudiography: Analysis and Interpretation of Audiogram. B. C. Trowbridge, Kansas City, Mo.—p. 899.
Tonsillectomy and Its Effect on Singing Voice. W. A. C. Zerffi, New York.—p. 915.
Experimental Hypersensitivity of Mucous Membranes of Upper Respiratory Tract. I. Frank, Margery Blahd and Katharine M. Howell, Chicago.—p. 918.
Peroral Endoscopy. L. H. Clerf and F. J. Putney, Philadelphia.—p. 936.

Irradiation in Deafness.—Emerson and his associates describe a simple and effective method of irradiating the eustachian orifices for deafness secondary to hypertrophy of lymphoid tissue which uses simple instruments and only 25 mg. of radium. The procedure is within the reach of most clinics. One hundred patients with a history of deafness and eustachian adenopathy were treated with excellent results; some return of hearing or arrest of the process should be considered a good result, especially for a patient in the teens. Any preexisting infection of the upper respiratory tract should be eliminated. The type of deafness discussed is insidious in its onset and progress and can be detected only by the wide use of the audiometer.

Archives of Physical Therapy, Chicago

23:321-384 (June) 1942

*Recent Changes in Concept of Treatment of Poliomyelitis. A. Steindler, in collaboration with L. A. Russin, L. Sheplan and V. Wolkin, Iowa City.—p. 325.
Recent Trends in Cerebral Palsy. W. M. Phelps, Baltimore.—p. 332.
*Respirators and How to Use Them. C. J. McLoughlin, Atlanta, Ga.—p. 336.
Painful Shoulders. R. Kovács, New York.—p. 341.
Physical Reconstruction and Vocational Education in World War in 1914 to 1918. D. W. McCormick, Fort Custer, Mich.—p. 348.
Physical Measures in Treatment of Veterans. C. R. Brooke, Newark, N. J.—p. 353.
Hypothermic Anesthesia: Use in Surgery of Extremities. M. K. Newman, Detroit.—p. 357.

Treatment of Poliomyelitis.—The physiologist states that the passage of a muscle through its complete range of motion at frequent intervals enhances rather than retards recovery by stimulating the venous circulation and lymphatic passages to the affected members. During the 1940-1941 epidemic of poliomyelitis in Iowa Steindler and his associates studied 200 patients particularly from the standpoint of the development of contractures, which took place in approximately 25 per cent. Severe and persistent extension contractures usually developed in patients who had been maintained in splints for some time. Definite evidence of circulatory disturbances which result not only in impairment of circulation but in definite changes in the bone in the segmental area of the musculature involved are most definite in patients with the most severe involvement of the surrounding musculature and contracture. As early as two or three months after the onset of poliomyelitis there was a definite loosening of the ligamentous reinforcements of the severely involved joints, especially of the ankle and the shoulder. These changes occurred particularly in patients who had been wearing airplane splints and in whom a constant upward pressure on the shoulder joint was at work. From these observations it must be assumed not only that muscle is involved but that ligaments, bones and tendons play a part in the pathologic changes of anterior poliomyelitis. Extensive involvement of the musculature of the trunk was observed in more than half of the patients. It was difficult to correlate the contractures of single groups of muscles because of the widespread and spotty nature of the paralysis. Since making these observations the authors have tried to overcome the condition at its inception. They remove the splint for an hour twice a day and let the patient lie on his side with his hips and knees flexed. This is apt to loosen the contracture of the back, and there is no evidence that it produces contractures of the knee or hip. Miss Kenny has emphasized the fact that the patient must be reeducated to the use of the individual muscle; her suggestions for individual muscle training have been adopted and certain departures from the old time orthodox treatment have been necessary. However, all fixation or immobilization should not be abandoned. Limbs that are unstable in their joints, whether or not they have recovered from the paralysis, must be supported. When walking or standing is resumed, such apparatus should not be used beyond the point at which static instability makes it necessary. When the soundness of the newer clinical observations in infantile paralysis is established, the application of common sense and of general biologic principles will free the treatment of poliomyelitis from orthodoxy and radicalism.

Respirators.—McLoughlin points out that not all patients placed in respirators are cured or even helped. The apparatus is not the miracle wonder that it was hoped and still believed by many to be. Regardless of the cause of respiratory involvement, the respirator is indicated when the function of the intercostals and the diaphragm is impaired. The amount of help provided will depend on the nature of the functional impairment. Whenever a patient with signs of impairment of respiration is seen, every effort should be made to determine the cause, nature and extent of the impairment. If the difficulty is mainly with the intercostals and the diaphragm, he should be placed in a respirator. Too often the respirator is considered a last resort, and the patient is allowed to continue to use his weakened respiratory muscles until they have become exhausted, and collapse from fatigue results. As strength returns to the paralyzed and weakened muscles the patient must not be allowed to remain out of the respirator for too long intervals. The intermittent use of the respirator is often necessary for months. Patients with severe pharyngeal paralysis do very poorly in respirators and there is danger of aspiration of a plug of mucus which has accumulated around the glottis. Every physician should know the indications for and the value of the use of the respirator. The bulbar types of paralysis do not show satisfactory improvement, and they account for most of the disappointing results with the respirator.

Archives of Surgery, Chicago

45:1-182 (July) 1942

Benign Neoplasms of Gallbladder. V. D. Shepard, W. Walters and M. B. Dockerty, Rochester, Minn.—p. 1.
*Coup-Contrecoup Mechanism of Craniocerebral Injuries: Some Observations. C. B. Courville, Los Angeles.—p. 19.
*Total Thyroidectomy for Cardiac Disease: Reevaluation. W. H. Parsons and W. K. Purks, Vicksburg, Miss.—p. 44.
*Pseudomyxoma Peritonei in Man. J. S. Chaffee and R. H. LeGrand, Philadelphia.—p. 55.
Absorption of Surgical Gut (Catgut): III. Duration in Tissues After Loss of Tensile Strength. H. P. Jenkins, L. S. Hrdina, F. M. Owens Jr., Chicago, and F. M. Swisher, Hot Springs, N. Mex.—p. 74.
Essential Biochemical Derangements in Hyperthyroidism. W. Bartlett Jr., St. Louis.—p. 103.
Cystadenoma of Pancreas: Report of Five Cases. R. F. Bowers, J. W. Lord Jr. and B. McSwain, New York.—p. 111.
Familial Polyposis of Colon. V. S. Falk, Urbana, Ill.—p. 123.
Ganglion Cell Tumor (Ganglioglioma) in Third Ventricle: Operative Removal with Clinical Recovery. F. M. Anderson and L. J. Adelstein, Los Angeles.—p. 129.
Influence of Abdominal Binders on Lung Volume and Pulmonary Dynamics. M. D. Altschule and N. Zamcheck, Boston.—p. 140.
Sympathectomy of Upper Extremity: Evidence That Only the Second Dorsal Ganglion Need Be Removed for Complete Sympathectomy. O. R. Hyndman and J. Wolkin, Iowa City.—p. 145.
Intermittent Volvulus of Mobile Cecum. F. J. Ingelfinger, Boston.—p. 156.
Liposarcoma: Report of Nine Cases. R. B. Moreland and W. L. McNamara, Hines, Ill.—p. 164.
Interval Intracranial Hemorrhage: Its Diagnosis and Management; Analysis of Twenty-Five Cases. E. Seletz, Los Angeles.—p. 177.

Coup-Contrecoup Mechanism of Craniocerebral Injuries.—Courville reviews 206 consecutive cases of fatal cerebral injury in which contusion of the brain was sustained while the head was in motion. Of the 202 in which the survival period

was known, death occurred on the first day in 69, on the second in 23, on the third in 20, on the fourth in 12, on the fifth and sixth in 7, on the seventh in 5, in the second week in 32 and after more than two weeks in 27. The common sites for cerebral contusion were the temporal lobe in 145 and the frontal lobe in 84. It seems clear to the author that a coup (direct) injury can be sustained in the right lower central area, while the contrecoup (indirect) injury to the brain can be apparently limited to the relatively quiescent minor temporal lobe or so diffused as to result in only minor and transitory reflex changes. This suggests that, even in the presence of minor injuries, coup as well as contrecoup injuries to the brain may occur and evidence of such injuries can often be found if looked for. A temporary loss of function of the right visual cortex may result from some disturbance due either to shock or to local circulatory changes consequent to the impact of the occipital region against a solid object. Coup effects do occur after falls on the back of the head, even though no grossly visible lesion results from them. These effects are transitory and due to functional rather than to structural changes. Microscopic alterations in transient contrecoup occipital cortex injury would be discovered if searched for. They would probably be vascular in origin, possibly on an anoxic basis (owing to local transitory disturbances in blood supply incident to commotio cerebri). In addition, some such injuries are produced by transmission of a wave of force (pressure) through the brain tissue.

Total Thyroidectomy for Heart Disease.—From an analysis of the 362 instances of thyroidectomy performed for heart disease in 1937, a questionnaire sent to the persons and clinics supplying the data for the report and on their personal experience in 5 cases, Parsons and Purks conclude that total thyroidectomy is of negligible value in congestive heart failure. This might be expected, as any theory which would reasonably explain why improvement should occur is absent. On the other hand, it appears that certain carefully selected patients with angina pectoris may be and actually are benefited by the operation; also the procedure should be considered for patients who have not been benefited by medical measures.

Pseudomyxoma Peritonei in Man.—Chaffee and LeGrand believe that their case of mucocele of the appendix with pseudomyxoma peritonei in a male patient is the fifteenth of its kind. The clinical diagnosis, the pathologic picture and the surgical procedure were carefully considered. Although ovarian cystadenoma is the common source of pseudomyxoma peritonei, mucocele of the appendix should not be overlooked. There are no reliable diagnostic clinical features for either. Peritoneoscopy aided the authors in the diagnosis of their case. Cecectomy including the dependent part of the cecum and the appendical attachment is a rational procedure. Appendectomy and postoperative irradiation are indicated for pseudomyxoma peritonei. The actual cause of the death of their patient twelve days after operation was a series of related events: perforation of the appendical stump, peritonitis and ileus. The patient would otherwise have died of compression of the bowel or the mesenteric vessels by the myxomatous material.

Arkansas Medical Society Journal, Fort Smith

39:45-66 (July) 1942

Pruritus Ani. R. E. Crigler, Fort Smith.—p. 45.
Methods of Giving Sulfonamides. A. M. Harris, Little Rock.—p. 47.

Bulletin New York Academy of Medicine, New York

18:431-494 (July) 1942

The Anticoagulants: Heparin and Dicoumarin-[3,3'-Methylene-Bis-(4-Hydroxycoumarin)]. A. Prandoni and I. Wright, New York.—p. 433.
Studies on Experimental Hypertension: XVIII. Experimental Observations on Humoral Mechanism of Hypertension. H. A. Lewis and H. Goldblatt, Cleveland.—p. 459.

Delaware State Medical Journal, Wilmington

14:137-156 (June) 1942

Discussion of Use of Blood and Plasma Transfusion: Method of Influencing *pH* and Prothrombin of Plasma Intramarrow Injection of Concentrated Plasma in Shock. H. W. Jones, F. L. Munro, L. A. Erf and L. M. Tocantins, Philadelphia.—p. 137.
Toxin Antitoxin Immunization and Intradermal Immunization Against Scarlet Fever in Adults. G. J. Boines, Wilmington.—p. 146.

Endocrinology, Springfield, Ill.

30:835-1060 (June) 1942. **Partial Index**

Association for Study of Internal Secretions: Its Past—Its Future. F. M. Pottenger, Monrovia, Calif.—p. 846.
Discussion of Mechanism of Action of Adrenal Cortical Hormones on Carbohydrate and Protein Metabolism. C. N. H. Long, New Haven, Conn.—p. 870.
Advancement of Knowledge of Role of Hypophysis in Carbohydrate Metabolism During Last Twenty-Five Years. B. A. Houssay, Buenos Aires, Argentina.—p. 884.
Response of Vagoinsulin System to Anoxia as Demonstrated in Adrenalectomized Dogs. I. McQuarrie, M. R. Ziegler and L. J. Hay, Minneapolis.—p. 898.
Prevention of Experimental Gastrojejunal Ulcer by Enterogastrone Therapy. A. P. Hands, H. Greengard, F. W. Preston, G. B. Fauley and A. C. Ivy, Chicago.—p. 905.
*Pseudohypoparathyroidism—Example of "Seabright Bantam Syndrome": Report of Three Cases. F. Albright, C. H. Burnett, Patricia H. Smith and W. Parson, Boston.—p. 922.
The Estrogens. E. A. Doisy, St. Louis.—p. 933.
Estrogenic Hormones in Genesis of Tumors and Cancers. E. Allen, New Haven, Conn.—p. 942.
Endocrine Effects on Certain Dysontogenetic Tumors of Ovary. E. Novak, Baltimore.—p. 953.
Clinical Aspects of Dwarfing. E. K. Shelton, Los Angeles.—p. 1000.
Changing Concepts in Treatment of Toxic Goiter. W. O. Thompson, Chicago.—p. 1015.

Pseudohypoparathyroidism.—Albright and his collaborators report 3 instances of the clinical picture of hypoparathyroidism in each of which there was evidence of failure of the organism to respond to the hormone. The expression Seabright bantam syndrome derives its origin from the fact that the male Seabright bantam has female feathering, the cause of which is not that the testis produces female hormone but that its feathers respond in an abnormal way to the normal male hormone. Another probable example of failure of an end organ to respond normally is seen in patients with a low basal metabolic rate without any other evidence of hypothyroidism. They usually require more thyroid hormone to elevate their metabolism than is required by patients with true hypothyroidism. The inference is that the low metabolism is due to a failure of the body to react in a normal way to the hormone. Another human example is the absence of beard in the American Indian. The data of the 3 patients suggest strongly that the disturbance was not a lack of the hormone but a resistance to it. The evidence for this was the following: Abnormal serum calcium and phosphorus values failed to tend toward normal on large amounts of solution of parathyroid, 2 patients failed to show a phosphate diuresis following solution of parathyroid intravenously and 1 patient had a normal parathyroid tissue on surgical exploration. The cause for their peculiar physiognomy (round face and thick set figure) is obscure; it may be pure coincidence, but the authors feel that it is not.

Hawaii Medical Journal, Honolulu

1:291-346 (May) 1942

Tuberculous Myocardial Aneurysm with Rupture and Sudden Death from Tamponade: Review of Literature and Report of Case. K. P. Jones, Kula, Maui, and I. L. Tilden, Honolulu.—p. 295.
Tuberculosis in War and Postwar Period. H. M. Izumi, Kula, Maui.—p. 298.
Need for Autopsies in Stillbirths and Neonatal Deaths. W. B. Patterson, Puunene, Maui.—p. 301.
Trichinosis: Report of Four Cases. G. H. Lightner and W. B. Patterson, Puunene, Maui.—p. 302.
Clinical Aspects of Epidemic of Typhoid Fever. R. J. Hoagland and J. F. Fleming, Honolulu.—p. 307.

Indiana State Medical Assn. Journal, Indianapolis

35:345-400 (July) 1942

Medicine in Ancient Rome. E. F. Kiser, Indianapolis.—p. 345.
Allergy in General Practice. J. Forman, Columbus, Ohio.—p. 351.
Lipomas of Omentum. R. G. Ikins and J. L. Arbogast, Lafayette.—p. 354.
Role of Urobilinogen in Liver Metabolism and Ehrlich's Test for Urinary Urobilinogen. F. Neuwelt, Gary.—p. 355.
Lowering Mortality of Poor Surgical Risk. M. Casper, Louisville, Ky.—p. 358.
Penicillin Chemotherapy of Mice Infected with Staphylococcus Aureus. H. M. Powell and W. A. Jamieson, Indianapolis.—p. 361.
Treatment of Burns. M. B. Welborn, Evansville.—p. 363.
Resection of Prostate in Young Individuals: Report of Three Cases. P. E. McCown, Indianapolis.—p. 364.
X-Ray Examination of Teachers and School Employees in Southwestern Indiana: Survey of 1,158 X-Rays. P. D. Crimm, Evansville.—p. 367.

Iowa State Medical Society Journal, Des Moines

32:281-366 (July) 1942

Cesarean Section. J. L. McKelvey, Minneapolis.—p. 281.
Recognition of Normal Heart. F. A. Willius, Rochester, Minn.—p. 287.
Nasal Obstruction. W. J. Foster, Cedar Rapids.—p. 290.
Venous Pressure in Children. L. H. Jacques, Iowa City.—p. 294.
Kenny Treatment of Infantile Paralysis in Acute Stage. J. E. Dyson, Des Moines.—p. 297.

Journal of Immunology, Baltimore

44:1-94 (May) 1942

Immunologic Studies of Pollinosis: III. Fluctuations in Antibody Titer of Normal Individuals Subcutaneously and Intravenously Injected with Pollen Extract over Protracted Periods. Mary Hewitt Loveless, New York.—p. 1.
Neutralization Tests Against Neurotropic Viruses with Serums Collected in Central Africa. K. C. Smithburn and H. R. Jacobs, Entebbe, Uganda, East Africa.—p. 9.
Differentiation of West Nile Virus from Viruses of St. Louis and Japanese B Encephalitis. K. C. Smithburn, Entebbe, Uganda, East Africa.—p. 25.
Potency Determination of Antipertussis Serum by Mouse Protective Test. A. Holm and W. E. Bunney, New Brunswick, N. J.—p. 33.
Failure of Human Convalescent Type Specific Antipneumococcus Antibody to Fix Complement. D. Stats and J. G. M. Bullowa, New York.—p. 41.
Effect of Induced Hypercholesterolemia on Antibody Nitrogen Production (Pneumococcus Type 2) in Rabbits. S. Member and M. Bruger, with technical assistance of Sylvia B. Ehrlich, New York.—p. 49.
Studies on Mechanism of Species Specific Immunity Against Pneumococcic Infection. Julia A. Street, New York.—p. 53.
Quantitative Study of Passive Anaphylaxis in Guinea Pig. E. A. Kabat and H. Landow, New York.—p. 69.
Large Scale Serum Neutralization Survey of Certain Vertebrates as Part of Epidemiologic Study of Encephalitis of Western Equine and St. Louis Types. W. M. Hammon, San Francisco; H. W. Lundy, Pullman, Wash.; J. A. Gray, F. C. Evans, F. Bang and E. M. Izumi.—p. 75.
Oral Immunization of Trout Against Bacterium Salmonicida. D. C. B. Duff, Vancouver, B. C., Canada.—p. 87.

Journal of Nervous and Mental Disease, New York

96:1-124 (July) 1942

Catatonic Pupil. A. Levine and P. Schilder, New York.—p. 1.
Narcolepsy. H. G. Hadley, Washington, D. C.—p. 13.
Psychiatry and Culture. B. Karpman, Washington, D. C.—p. 17.
*Deterioration of Patients with Organic Epilepsy. A. J. Arieff and G. K. Yacorzynski, Chicago.—p. 49.
Electrostimulated Convulsive Doses in Intact Humans by Means of Unidirectional Currents. E. Friedman, Norwich, Conn., and P. H. Wilcox, Traverse City, Mich.—p. 56.
*Clinical Test for Reversible Headache. M. Scott, Philadelphia.—p. 64.
Psychopathology of Ego System. G. W. Kisker and G. W. Knox, Columbus, Ohio.—p. 66.

Deterioration in Organic Epilepsy.—Arieff and Yacorzynski tested *27* outclinic epileptic patients at intervals of one to nine years with two to five Stanford-Binet intelligence tests. For the group there was definite deterioration with an average decrease of six points between the first and last tests. The patients as a group differed from patients with nonorganic epilepsy in that their initial intelligence scores were lower. In 11 per cent there was a significant increase of the intelligence scores and in 37 per cent a decrease. Four of the patients who were tested more than twice showed a progressive trend toward deterioration.

Reversible Headache.—Scott outlines a test which he has found of value in differentiating headache due to cerebral tumor, migraine, hypertension, meningitis, cerebrospinal syphilis, anxiety neurosis and malingering. Steady, firm pressure with the thumbs is made against both malar bones for ten seconds, when the patient is asked "Now, what has happened to your pain?" Following the patient's answer, the thumb pressure is suddenly released and the patient is again asked the same question. If the headache is irreversible, that is, of somatic source, the patient will answer that nothing has happened or that the headache is worse. However, in most instances when the headache is reversible, as in anxiety, hysteria or malingering, the patient will state that he had complete relief when the malar pressure was applied and a sudden return of the headache when the pressure was released. The same result occurs on repeated trials.

Journal of Pharmacology & Exper. Therap., Baltimore

75:105-186 (June) 1942

Pharmacologic Behavior of Intraocular Muscles: V. Action of Yohimbine and Ergotamine on Dilator Iridis. E. Sachs and F. F. Yonkman, Detroit.—p. 105.
Toxicity of Menadione, Menadiol and Esters. S. Ansbacher, W. C. Corwin and B. G. H. Thomas, New Brunswick, N. J.—p. 111.
Determination of Local Anesthetic Potency by Observation of Nerve Action Potentials. A. L. Bennett, J. C. Wagner and A. R. McIntyre, Omaha.—p. 125.
Animal Standards for Acute Toxicity of Spinal Anesthetic Agents. Co-Tui, A. L. Preiss, C. L. Burstein and W. F. Ruggiero, New York.—p. 137.
Toxicology of Synthetic Estrogen Diethylstilbestrol and Certain Related Compounds. R. S. Teague, New Orleans.—p. 145.
Action of Certain Drugs on Crustacean Muscle. F. P. Knowlton, Syracuse, N. Y.—p. 154.
Studies of Morphine, Codeine and Their Derivatives: XVI. Clinical Studies of Morphine, Methyldihydromorphinone (Metopon) and Dihydrodesoxymorphine-D (Desmorphine). L. E. Lee Jr.—p. 161.
Uterine Principle from Viburnum Prunifolium. W. E. Evans Jr., W. G. Harne and J. C. Krantz Jr., Baltimore.—p. 174.
Further Observations on Action of Drugs on Coronary Vessel Caliber: Paradrine, Angiotonin, Renin, Quinidine, Insulin, Coramine, Magnesium Sulfate, Morphine, Acid and Alkali. S. R. Elek and L. N. Katz, Chicago.—p. 178.
Microdetermination of Quinine in Blood and Tissues. F. E. Kelsey and E. M. K. Geiling, Chicago.—p. 183.

Kansas Medical Society Journal, Topeka

43:193-236 (May) 1942

Vitamin Requirement for Infants and Children. D. N. Medearis, Kansas City.—p. 197.
Prefrontal Lobotomy in Treatment of Malignant Mental Disorders. F. A. Carmichael, St. Joseph, Mo., and F. A. Carmichael Jr., Kansas City, Mo.—p. 200.
Ruptured Extrauterine Pregnancy. L. Lewis, McPherson.—p. 203.
Acute Perforated Peptic Ulcer. F. Foncannon, Emporia.—p. 204.
Urinalysis Before Appendectomy. M. A. Walker, Kansas City.—p. 207.

Laryngoscope, St. Louis

52:423-506 (June) 1942

Clinical Survey of Sphenoid Sinus, with Special Reference to Direct Method of Lavage and Injection of Opaque Medium. J. C. Peele and F. E. LeJeune, New Orleans.—p. 423.
Early Development of Teaching of Otology in Europe and America. E. M. Seydell, Wichita, Kan.—p. 453.
Acute Frontal Sinusitis: Trephine Operation for Drainage in Selected Cases. L. R. Boies, Minneapolis.—p. 458.
Endaural Repair of Postauricular Fistulas. L. F. Johnson and A. Solo, Boston.—p. 469.
Fractures of Malar Bone: Report of Cases. J. H. Childrey, San Francisco.—p. 473.
Severe Epistaxis Presenting Problems as to Etiology, Determination of Origin and Methods of Control: Case. A. J. Wagers, Philadelphia.—p. 480.
Review of Reconstructive Surgery of Face—1940-1942. J. B. Brown and F. McDowell, St. Louis.—p. 489.

Ohio State Medical Journal, Columbus

38:629-716 (July) 1942

Chemotherapy. C. S. Keefer, Boston.—p. 645.
Importance of Diet in Control of Tuberculosis. H. J. Nimitz, Cincinnati.—p. 649.
*Tonsillectomy and Poliomyelitis. J. A. Toomey, Cleveland, and C. E. Krill, Akron.—p. 653.
Generalized Peritonitis as Complication of Malignant Hypertension: Case Record Presenting Clinical Problems. S. Koletsky, Cleveland.—p. 656.
Management of Heart Disease. R. C. Kirk, Columbus.—p. 657.
*Treatment of Retained Placenta, with Discussion of Majon-Gabastou Method of Intracordal Saline. W. F. Shannon, Cincinnati.—p. 661.
Some Problems in Development of Plasma Bank: Summary of Ninety Cases. J. A. Rogers, Youngstown.—p. 664.
Unusual Complication of Gallbladder Disease. W. A. Neill and E. Sternfeld, Toledo.—p. 669.
Treatment of Industrial Dermatoses. E. W. Netherton, Cleveland.—p. 671.
Electro Shock Therapy: Third Annual Reportorial Review. J. L. Fetterman, Cleveland.—p. 675.

Tonsillectomy and Poliomyelitis.—The fourteen years' experience in the relation of poliomyelitis to tonsillectomy at the Children's Hospital in Akron and of one year at the City Hospital of Cleveland is tabulated by Toomey and Krill. Seventeen of the 210 patients at the children's hospital died, as did 18 of the 220 at the city hospital. In 14, or 82 per cent, of 17 patients who had had a tonsillectomy or adenoidectomy within thirty days prior to the onset of poliomyelitis the bulbar

type of paralysis developed. Of 134 operated on prior to thirty days at both hospitals, 52 had bulbar poliomyelitis. At the children's hospital 8 of the 16 children with the bulbar type died. At the city hospital 8 of the 36 died. In 7, or 5 per cent, of 140 nonsurgical patients admitted to the children's hospital and 23, or 19.4 per cent, of 118 similar patients admitted to the city hospital, bulbar poliomyelitis developed. Here again most of those who died were in the bulbar group—5 of the total 7 at the children's hospital and the 9 at the city hospital. If only the mortality of the group that had spinal or nonparalytic poliomyelitis is considered, the rate seems insignificant—2 per cent at the children's hospital and zero at the city hospital. The many individuals who had had a tonsillectomy and an adenoidectomy within thirty days of bulbar poliomyelitis cannot be explained on the basis of mere chance or random sampling. In the regions discussed, it would appear to be advisable to do tonsillectomies in the late spring.

Treatment of Retained Placenta.—Uterine inertia or atony is probably responsible for most instances of an adherent retained placenta. A less frequent cause is the so-called constriction ring or hour-glass uterus. Most authorities agree that manual removal is indicated when the third stage is prolonged from one to two hours after delivery. Shannon states that in three and a half years ended June 30, 1940, 52 cases of retained placenta occurred among 7,776 total viable births at the Cincinnati General Hospital. Forty-three occurred in multiparas and 9 in primiparas. Manual extraction was used in 37. To avoid manual extraction with its high morbidity (37.8 per cent) and mortality (2.7 per cent) the other 15 were treated according to the method of Majon-Gabastou, by the injection of the umbilical vein with sterile saline solution through a modified intravenous apparatus. In 14 the placenta was expelled within thirty minutes, in 5 spontaneously and in 9 with slight to moderate suprapubic pressure. In 1 the method failed and manual removal was resorted to. A general uncorrected morbidity rate for the 15 was 7.1 per cent. There were no deaths in this series. The modified intravenous apparatus used consists of a Kelly bottle containing sterile saline solution, a rubber connecting tube, a three way stop cock, a 50 cc. syringe and a no. 18 short beveled intravenous needle. While an assistant steadies the cord, the umbilical vein is pierced and 250 to 400 cc. of sterile isotonic solution of sodium chloride is quickly injected. As the fluid enters the placenta, the uterus is felt to rise up out of the abdomen. The cord is then clamped and the onset of the uterine contractions is waited for. Contractions were usually reestablished within fifteen minutes.

Oklahoma State Medical Assn. Jour., Oklahoma City

35:231-276 (June) 1942

Management of Depressions as Seen in General Practice. T. H. Harris, Galveston, Texas.—p. 231.
Diagnosis and Treatment of Goiter. C. C. Hoke, Tulsa.—p. 236.
Ideals in Rural Obstetrics. I. Dyer, Tahlequah.—p. 238.
Review of War Surgery. G. E. Stanbro, Oklahoma City.—p. 241.
Prostatic Resection and Results Which May Be Expected. E. H. Fite, Muskogee.—p. 246.

Public Health Reports, Washington, D. C.

57:885-916 (June 12) 1942

Distribution of Health Services in Structure of State Government: V. Sanitation by State Agencies. J. W. Mountin and Evelyn Flook.—p. 885.

57:917-960 (June 19) 1942

Id.: V. Sanitation by State Agencies—Continued. J. W. Mountin and Evelyn Flook.—p. 917.

Southwestern Medicine, El Paso, Texas

26:181-214 (June) 1942

Arizona Medicine in 1900 and Today. E. P. Palmer, Phoenix, Ariz.—p. 182.
Conservative Surgical Treatment of Peptic Ulcer. H. L. Thompson, Los Angeles.—p. 187.
Treatment of War Injuries to Chest. V. S. Randolph, Phoenix, Ariz.—p. 191.
Pathologic Physiology of Liver: II. General Metabolism. J. P. Simonds, Chicago.—p. 193.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

23:61-102 (April) 1942

Carcinomatous Transformation in Transplantable Rat Fibroadenoma. F. R. Selbie.—p. 61.
Influence of Chemical Constitution on Antiseptic Activity: I. Study of Monoaminoacridines. S. D. Rubbo, A. Albert and M. Maxwell.—p. 69.
Artificial Antigens with Agar, Gum Acacia and Cherry Gum Specificity. S. M. Partridge and W. T. J. Morgan.—p. 84.
Bacterial Inhibition by Metabolite Analogues: III. Pantoyltaurine—Antibacterial Index of Inhibitors. H. McIlwain.—p. 95.

British Journal of Ophthalmology, London

26:241-288 (June) 1942

Clinical Observations and Deductions in Therapeutic Use of Sulfonamide and Its Derivatives in Ophthalmology. J. H. Young.—p. 241.
Report on Analysis of Cases at Eye Clinic in Lagos, Nigeria. G. E. Dodds.—p. 257.
Note on Two Cases of Megalocornea. L. H. Savin.—p. 265.
Inclusion Conjunctivitis. A. F. MacCallan.—p. 271.
First Hundred Cases of Intracapsular Cataract Extractions. J. B. McArevey.—p. 275.

British Journal of Radiology, London

15:155-184 (June) 1942

Significance of Radiologic Manifestations of Erythema Nodosum. P. Kerley.—p. 155.
New Radiologic Department, Willesden General Hospital (Successful Adaptation). E. R. Williams.—p. 166.
Lesions of Intervertebral Disks. A. D. Wright.—p. 170.
Volume Dosage in Deep X-Ray Therapy. F. Ellis.—p. 174.
Representation of Deep X-Ray Therapy Beams by Means of Isodose Charts. D. E. A. Jones.—p. 178.

British Medical Journal, London

1:631-658 (May 23) 1942

*Respirator Dermatitis. J. Petro.—p. 631.
Regional Ileitis (Crohn's Disease): Two Cases. F. W. M. Pratt and S. L. Simpson.—p. 634.
Pathogenesis of Pulmonary Tuberculosis of Adult Type. R. C. Wingfield.—p. 637.
Edema of Glottis Complicating Measles: Review of Eight Personal Cases. J. H. Mulvany.—p. 638.

Respirator Dermatitis.—Petro reports on facial dermatitis exhibited by 16 members of a Royal Navy depot at which weekly respirator drill was practiced. The lesions were confined to areas of the face which came in contact with the rubber. The symptoms became progressively worse following each drill. Masks from certain firms were responsible for the dermatitis, and patch tests with rubber disks cut from these respirators showed positive reactions. The diagnosis was confirmed by ascertaining the nature of all "accelerators" and "antioxidants" (two organic compounds) used in the manufacture of the masks. Rubber not treated with these substances gave negative patch tests at all times. Three to fifteen weekly fifteen minute exposures to potentially harmful masks were necessary for sensitization in predisposed subjects. Perspiration, conditioned by temperature, humidity, exercise, diet and individual susceptibility, proved an important predisposing factor, as the incidence was lower during a cold spell. The early symptoms were a mild burning sensation, an irritation of the areas in contact with the mask and/or transient erythema at the sites of irritation. Scratching was unavoidable and gave rise to pyogenic infection. The vesicular and weeping stages which followed were frequently associated with edema of the lax tissues, which gave an appearance of puffiness, double chin and aging. A protracted dry and scaly stage followed the subsidence of the acute inflammatory phase. With gradual desquamation the affected areas became smooth, but were discolored for a few days. The most effective prophylactic measure would be the recall of all potentially harmful masks and their replacement by innocuous varieties. Prompt treatment in the earliest stages ensured a rapid cure, and replacement of the incriminating respirator by an innocuous one prevented recurrence. The early stage of erythema responded to dusting with calamine powder

or talc. The more pronounced erythema required calamine lotion or Burow's solution (a 2.5 per cent liquid aluminum acetate). In the later stages of vesiculation, weeping and crusting, calamine liniment was effective. In superadded pyogenic infection a 20 per cent sulfonamide paste cleared up the condition. The dry scaly stage responded to treatment with boric acid ointment followed by an ointment of 0.65 Gm. of salicylic acid and 0.65 Gm. of ammoniated mercury in 1 ounce (30 Gm.) of soft petrolatum.

1:659-684 (May 30) 1942

*Universal Donor with High Titer Isoagglutinins: Effect of Anti A Isoagglutinins on Recipients of Group A. E. F. Aubert, Kathleen E. Boorman, Barbara E. Dodd and J. F. Loutit.—p. 659.
Treatment of Gonorrhea, Balanitis and Acquired Phimosis. T. R. L. Jones.—p. 664.
Calcification of Intervertebral Disks. M. Albert.—p. 666.
*Sublingual Administration of Methyl Testosterone. A. W. Spence.—p. 668.

Universal Donor with High Titer Isoagglutinins.—Aubert and his associates determined the anti A and anti B isoagglutinin titers of 250 group O donors. In assessing the results of the transfusion of plasma or serum from these donors to 12 fully conscious group A recipients they paid particular attention to the clinical reaction of the recipient, the effect on the recipient's erythrocytes and the antiagglutinin mechanisms. Although symptoms possibly attributable to the action of these isoagglutinins developed in several of the recipients, no reactions were observed which caused more than a transient deterioration in their general condition. Even in the patient in whom severe lumbar pain, hemoglobinemia and hemoglobinuria developed the symptoms subsided in a few minutes except for a mild headache. The hemoglobinuria persisted for six hours, but there was no evidence of renal impairment. In 5 of the 12 moderate or severe aching pain across the small of the back, often radiating to the thighs, constricting sensations in the neck and chest, intestinal colic and nausea developed. No conclusions can be drawn about the cause of the reactions. They may be due to unidentified substances in the serum. Rigors in 3 and headaches and pyrexial reactions above 100 F. in 9 were also encountered. These are apt to occur with transfusions not involving incompatible isoagglutinins. A substantial rise in the serum bilirubin suggesting abnormal erythrocyte destruction occurred in 7 recipients; in 3 this was supported by a fall in the erythrocyte count. The remaining 5 recipients receiving high titer O serum or plasma (titer 512 or over) did not show either hemoglobinemia or intravascular agglutination, but large serum bilirubin rises were again found, suggesting that erythrocyte destruction had occurred. The serial blood counts of 1 of these patients revealed a drop of two million erythrocytes and a slight rise of bilirubin lasting for four days. The question of the titer at which erythrocyte damage in the recipient becomes substantial is of the greatest importance. The protection to the erythrocytes offered by appreciable amounts of plasma agglutinogen in the recipient is not absolute. Therefore, when a transfusion is designed to raise the recipient's erythrocyte count, homologous group blood should be given if possible. In an emergency, when restoration of the blood volume is the chief aim, the use of universal blood is justified. Plasma and serum may also be given for this purpose. When pooled in suitable proportions the anti A and anti B titers rarely exceed 16; the isoagglutinin content is small enough to be given with confidence to recipients of any group.

Sublingual Administration of Methyl Testosterone.—Spence states that the effectiveness of methyl testosterone administered sublingually to a eunuch was equal to or even greater than that obtained from intestinal absorption following oral therapy. Normal potency was maintained on two 5 mg. tablets sublingually, but three such tablets were required for oral medication.

Edinburgh Medical Journal

49:273-336 (May) 1942

Urogenital Tuberculosis. D. Band.—p. 273.
Glandular Fever (Infectious Mononucleosis). J. T. Smeall.—p. 291.
House Surgeon's Memories of Lister. St. C. Thomson.—p. 313.

Lancet, London

1:609-638 (May 23) 1942

*Miniature Mass Roentgenography in Royal Air Force: Review of 20,000 Examinations. R. R. Trail.—p. 609.
*Chronic Nasal Diphtheria Carriers: Cure with Sulfanilamide. Joan M. Boissard and R. M. Fry.—p. 610.
Organic Diseases Presenting as Psychologic Disturbances. N. G. Hulbert.—p. 614.
*Blood Transfusion for Obstetric Hemorrhage and Shock. H. L. Sheehan.—p. 616.
Serratus Magnus Palsy. J. S. Richardson.—p. 618.
Osteomyelitis of Frontal Bone Treated with Sulfathiazole. G. N. Taylor and A. H. Walters.—p. 619.

Miniature Mass Roentgenography in Royal Air Force.—Since November 1941, Trail states, 19,969 men of the Royal Air Force have been examined by miniature roentgenography. The results of the study revealed 54 with active and 67 with inactive tuberculosis. Of the 54 with active tuberculosis, 24 were less than 20, 21 between 20 and 24, 4 between 25 and 29, 3 between 30 and 34 and 2 were 35 or more years of age. Of the 67 with inactive tuberculosis, 11, 24, 21, 10 and 1 were in the respective foregoing age groups. In addition, calcified nodules, calcified lymph nodes or both were found in the films of 168 men. Total evidence of tuberculous infection was 1.45 per cent. The results of the study do not entitle one to a statement beyond the fact that almost all the miniature films showed pulmonary abnormalities in greater contrast to that seen on large films. This does not imply that every abnormality was detected. However, it does mean that a number of pulmonary abnormalities, particularly pulmonary tuberculosis, have been discovered in individuals who, up to the time of taking the miniature film, complained of no symptoms and that their condition had not been discovered by the ordinary routine medical examination.

Sulfanilamide in Nasal Diphtheria.—Study of the nasal swabs of 388 diphtheria patients revealed to Boissard and Fry that hemolytic streptococci in the nose of these patients more than doubled their stay (eighty-seven and a half days) in the hospital and the diphtheria carrier period. The odds were 3 to 1 in favor of a child with two or less positive nasal swabs being discharged by the fiftieth day and 4 to 1 for one with more than two positive nasal swabs. The authors were so deeply impressed with the influence on the diphtheria of the concurrent streptococcic infection that they tried sulfanilamide intranasally in 26 children with a heavy double nasal infection who had been positive for four to twenty-three weeks. In 24 the nasal infection was abruptly and permanently ended after eight days of treatment. In the other 2 this result was achieved by a second course. In addition, 2 nasal carriers with a double infection for eleven and five months, respectively, were treated outside the hospital and cured. It is concluded that the persistence of Corynebacterium diphtheriae in the nose mainly depends on the associated hemolytic streptococcus infection, which can be cleared up with sulfanilamide powder. The results suggest that sulfanilamide also has a direct action on C. diphtheriae.

Blood Transfusion for Obstetric Hemorrhage and Shock.—From 1929 to 1940 transfusions were given at the Glasgow Royal Maternity Hospital to 765 women for obstetric hemorrhage and shock; 259 women died as a result of these conditions. The figures when subdivided into the necessary subgroups justify the provisional conclusion that the efficacy of blood transfusion for obstetric hemorrhage is well supported but that its value for obstetric shock is doubtful. When the twelve years are divided into periods of three years (during each of which transfusion was used more frequently and obstetric care became better) Sheehan points out that the data show that deaths from hemorrhage fell significantly in the last two periods. The hemorrhage-shock deaths show a slight decrease, but the shock-hemorrhage and the shock deaths do not show any fall. There is no evidence to show that blood transfusion was of any benefit in shock, whether complicated by moderate hemorrhage or not. There is little evidence that shock in obstetrics is fundamentally different from shock in surgical trauma. Until more objective evidence is available, it does not appear justifiable to assume that transfusion for shock in obstetrics gives information which is inapplicable to shock in other conditions.

Schweizerische medizinische Wochenschrift, Basel

72:179-204 (Feb. 14) 1942. **Partial Index**

Waterhouse-Friderichsen Syndrome (Adrenal Apoplexy). J. Landis.—p. 179.
After-Treatment of Wounds. R. Meyer-Wildisen.—p. 182.
*Primary Tuberculous Infections in Adolescents and Adults. St. J. Leitner.—p. 185.
Relation Between Sugar Resorption and Phosphate Metabolism: Effect of Cerium Chloride on Sugar Resorption for Small Intestine. L. Laszt.—p. 193.
*Mental Effects of Shock. H. Wespi.—p. 195.
C-Phos (Ascorbic Acid-Phosphorus Preparation) in Postinfluenzal Asthenia and General Fatigue in Selected Troops. P. Sauser-Hall.—p. 197.

Primary Tuberculous Infections in Adolescents and Adults.—Leitner emphasizes that the primary infection of adolescents and adults is not as rare as was formerly believed. About one third of adolescents and young adults still give a negative tuberculin reaction. The course of the primary infection in adolescents and young adults is not more unfavorable than in children except when the infection results from massive numbers of bacilli or takes place over a long time. The primary infection is latent in the majority of cases; it may be recognized by the fact that the negative tuberculin reaction becomes positive. In a small number of cases the primary infection is accompanied by objective manifestations in spite of the absence of subjective complaints; the roentgenogram shows pulmonary infiltration or lymph node enlargement. In a third, still smaller, group the primary infection is manifested by both subjective and objective symptoms. The author's own observations were made on the last two groups. This report is concerned chiefly with the third group. Symptomatology and the clinical course of a manifest primary infection were studied in 28 cases. In the majority the condition began with a febrile period which lasted from two to four weeks or only a few days. Only 2 of the 28 patients had no rise in temperature. Catarrhal symptoms were frequent; 23 of the patients had a cough, but only 1 had expectoration. The physical findings were slight; the percussion note was shorter and the respiratory sound was altered over the area of infiltration; rales were not heard, as a rule. In the presence of enlargement of the hilus nodes a stenotic note due to the compression of the bronchus may be heard. Roentgenoscopy revealed pulmonary infiltration. Unilateral enlargement of the lymph nodes was characteristic. The erythrocyte sedimentation speed is usually accelerated during primary infection, but it rapidly returns to normal. The blood picture discloses a neutrophilic deviation to the left, frequently also a lymphopenia. Eosinophilia, which is indicative of the early appearance of allergy, was observed in 4 cases. The temperature, sedimentation rate, blood picture and serum coagulation reaction as well as the clinical picture resemble those of an acute infectious disease. The tuberculin reaction is strongly positive during the manifest primary reaction. The test became positive at the onset of the clinical signs, from four to six weeks after the infection. The Meinicke tuberculin reaction in the serum became positive later. Erythema nodosum was relatively frequent (11 of 28 cases) as an accompanying symptom. Microscopic examination of a nodule of erythema nodosum disclosed the allergic nature of the condition. Besides the typical course with regression of the primary infiltration and of the lymph node swelling within six months there were other manifestations of the primary infection. There was exudative pleurisy in 6 cases and polyserositis in 1, with Poncet's rheumatism and with generalized caseating tuberculosis of the lymphatic system. Cases with early intrapulmonary dissemination are of greater practical importance; they may initiate a phthisic evolution. The author obtained valuable information regarding the incipient pulmonary tuberculosis of adults. In spite of the fact that these types progress endogenically, superinfection is not ruled out; tuberculin positive persons may develop tuberculosis following a massive exogenic infection. If the primary infection is diagnosed early, prompt treatment can prevent an unfavorable development. Patients having an unclarified condition with pulmonary symptoms should not be placed in hospitals for tuberculosis. Tuberculin tests may clarify the diagnosis in some cases. By keeping those with a negative reaction out of tuberculosis hospitals, not only will unnecessary expenses be avoided but infections will be prevented. The treatment of primary infection is conservative, but it should not be too short.

Mental Effects of Shock.—Wespi experienced a mild shock following an explosion in which he sustained facial burns. The shock was mild enough so that he could observe on himself the physical and mental effects of the condition. The shock was evidenced by objective symptoms: dilatation of pupils in the presence of relative bradycardia and increase in blood pressure. Psychologically the shock produced a regression into primitive logical mechanisms. The psyche was split in two: besides the logical, causal reasoning of a scientifically trained person there suddenly appeared the illogical thinking of a primitive person at the level of animism. An object (stove) was personified; the unpleasant experience of the shooting out of the explosion flame was projected on an object in the form in which the psyche had experienced it. The object appeared animated. This produced an intolerable dissociation with the still existing causal reasoning. The consciousness became altered in a peculiar manner: one part was logical, the other part illogical, primitive, animistically projecting. Part of the consciousness regressed to an older form of thinking. The process of projection is the typical aspect of this animistic stage of reasoning: the psychic experience is seen in the object in the place of the own psyche and becomes indissolubly mixed with it. The object (stove) becomes a vehicle of a part of the psyche of the subject; it becomes animated for the subject. By the projection of parts of the psyche to the object, the subject's psyche becomes changed; the consciousness is reduced and the result is a state which Janet designated as "lowering of the mental level." The condition becomes intolerable when, besides the newly erupting mechanisms of primitive thinking, there remain causally reasoning parts of the consciousness, like islands of a broken-up continer.. Logical reasoning originating in these islands was incapable of overcoming the dissociation. Only the cathartic action of the appearance of the extreme pains restored coordinated causal reasoning. The author does not assert that this psychic mechanism occurs in every case of shock. It is probable that the intensity of shock determines the psychic depth to which the subject is reduced.

Vida Nueva, Havana

49:121-168 (April) 1942. **Partial Index**

*Blood Serum Phosphatases. D. García Romeu, L. del Portillo and J. H. Piedra.—p. 121.
Dacryocystorhinostomy versus Dacryocystectomy. T. R. Yanes.—p. 132.
*Shock. V. Banet.—p. 155.

Blood Serum Phosphatases.—García Romeu and his collaborators studied the behavior of alkaline and acid phosphatases in the blood serum of 3 normal persons and of 32 patients. The figures for blood serum phosphatases in normal persons were the same as those previously reported in the literature. In the early stage of osteitis deformans, blood serum alkaline phosphatase was greatly increased while acid phosphatase was diminished. In the advanced stages of the disease both alkaline and acid phosphatases were increased. Blood serum alkaline phosphatase was diminished in pathologic fracture due to osteoporosis. It was increased in obstructive jaundice. Blood serum acid phosphatase was normal in chronic myeloid leukemia and in lymphoid leukemia, whereas it was increased in the hematocytoblastic and acute myeloid types of leukemia. The increase of acid phosphatase in acute myeloid leukemia is directly proportional to the number of immature cells and also to the number of total cells. In adenocarcinoma of the prostate with metastases, blood serum acid phosphatase was increased in a proportion to the extent of metastases. In view of the fact that the increase in acid phosphatase and the course of prostatic metastases may be controlled by castration or endocrine therapy the authors suggest that a similar effect control may be obtained in hemocytoblastic and acute myeloid leukemia.

Shock.—Shock can be prevented in some cases, says Banet, by sparing the vasomotor system. Immediate administration of morphine, gentle transport of the wounded, prompt control of

hemorrhage in extensive wounds, immobilization of limbs in fractures and application of heat are the measures to be employed. Operations in the course of shock are hazardous. When they are indispensable, as when a bleeding vessel is to be ligated, the ligation should be gently performed under local or regional anesthesia. Causal therapy of the traumatized focus is inadvisable except when the traumatized tissues can be eliminated by a simple incision. Local anesthesia is to be preferred. If it is not available nitrous oxide or cyclopropane can be used. Chloroform or ether is contraindicated. Oxygen therapy maintains the wounded for a while. The following solutions are recommended for intravenous therapy: (1) the Medical Research Committee's formula, which consists of sodium chloride 20 Gm. and potassium and calcium chlorides 5 Gm. of each in 1,000 cc. of water; (2) sodium chloride 8 Gm., sodium bicarbonate 1.5 Gm. and sodium thiosulfate 4 Gm. in 1,000 cc. of water. Blood transfusion and blood plasma transfusion constitute the best therapy for shock. Plasma is indicated in pure traumatic shock and in shock due to grave burns, whereas blood transfusion is indicated in traumatic hemorrhagic shock. Intravenous injections of acacia solution are indicated when blood or plasma is not available. Intravenous injections of adrenal cortex extract are of value in preventing but is of relative value only in controlling shock. Effects of adrenal cortex extract are better when given after a parenteral introduction of isotonic solution of sodium chloride. Transfusion by way of bone marrow of blood or of isotonic solution of sodium chloride are indicated in shock due to grave burns, mutilation, diffuse edema, acute peripheral collapse, insufficient veins, and during transport of the wounded. It is administered to adults through the sternum and to children through the lower end of the femur.

Zeitschrift für Immunitätsforschung, Jena

99:177-256 (Jan. 15) 1941. **Partial Index**

*New Method for Demonstration of Transfused Erythrocytes in Blood of Recipient: Experiments with Preserved Human Blood. M. Krüpe. —p. 177.
Simple Procedure for Preparation of Syphilis Reagent from Normal Placenta. I. Györffy.—p. 209.
Antigenic Properties of Yellow Ferment. W. Várterész and L. Kesztyüs. —p. 211.
Effect of Total Sympathectomy on Antibacterial Properties of Serums. S. Went and K. Lissák.—p. 215.
*Polysaccharides as Vehicles of Group Specific Properties in Man. P. N. Kossjakow.—p. 221.
Weak N Factor. A. Lauer.—p. 232.
Serum Protein and Antibody Protein During Immunization with Several Pneumococcus Antigens. M. Björneboe.—p. 245.

Demonstration of Transfused Erythrocytes in Blood of Recipient.—According to Krüpe, erythrocytes can best be identified by their serologic characteristics. The survival time of donor erythrocytes was estimated by Ashby in 1919 at between thirty and one hundred days. The author cites reasons why it is difficult to utilize the figures of the nonagglutinated erythrocytes as a basis for the survival of blood from O donors in recipients. The investigations on "mixed blood" with different factors have advantages over those on universal donor transfusions, because here the appearance and not the lack of agglutination reveals the presence of donor erythrocytes. In the course of studies on conserved blood, in which the problem was the transfusion of blood factors not matching those of the recipient, the author attempted to remove the donor erythrocytes from the blood of the recipient before he subjected them to serologic examination. He first clarified whether it is possible to remove from a mixture of erythrocytic suspensions of two different blood groups the erythrocytes that are present in lesser numbers. He also had to determine in what ratio of "donor" to "recipient" blood it is still possible to isolate an adequate quantity of donor erythrocytes. He found that: 1. After storage of whole blood with dextrose citrate solution in the refrigerator, at temperatures of from +2 to +4 C., the M and N factors are demonstrable up to fifty-six days after withdrawal. 2. The erythrocytic factors M N of group O blood that had been transfused after twenty-seven days of storage were still demonstrable in the blood of the recipient twenty days after transfusion. 3. On the basis of model experiments and of 9 cases in which blood transfusions were made, the author describes a method which makes it possible to isolate the donor erythrocytes from the blood of the recipient and then identify them on the basis of differences in blood groups and factors between the blood of the donor and the recipient.

Polysaccharides as Vehicles of Group Specific Properties in Man.—Kossjakow obtained from human erythrocytes of the A and B groups with the aid of a special method highly active group antigenic substances that were free from proteins, were soluble in water and were not soluble in alcohol, ether, chloroform and acetone. These substances belong to the group of the high molecular carbohydrates, the polysaccharides. They are thermostable toward temperatures of 100 C. They do not dialyze through collodion membranes, produce a positive molar reaction and show after hydrolysis reducing characteristics. The group polysaccharides obtained from human erythrocytes of groups A and B show a group antigenic action in experiments in vitro, but they exhibit no antibody forming capacity in vivo experiments and thus they belong to the category of haptens.

Zentralblatt für Gynäkologie, Leipzig

65:1917-1964 (Nov. 1) 1941. **Partial Index**

Rare Complications of Pregnancy. T. Heynemann.—p. 1918.
New Statistics on Absolute Cure of Cervical Carcinoma and Suggestion on General Comparable Statistics for Carcinoma. F. von Mikulicz-Radecki.—p. 1922.
*Development of Carcinoma on Basis of Condyloma Acuminatum. H. Kramann.—p. 1932.
Question of Home Delivery and Delivery in Hospital. W. Kirchner and O. H. Moell.—p. 1936.

Development of Carcinoma on Basis of Condyloma Acuminatum.—Kramann reports the case of a woman aged 53 with a history of condylomas in the genital region for the past six years. The lesions were removed with a cold cautery and the resulting wounds healed with surprising rapidity. Since the woman refused a radical operation the ulcer was subjected to protracted roentgen irradiation, which somewhat reduced its size. Several months later the ulcer increased rapidly and the woman died within several months. The necropsy disclosed a pavement cell carcinoma and necrotic metastases in the inguinal lymph nodes. The case is noteworthy because the condylomas, which generally disappear spontaneously after the forty-fifth year of life, developed after that period. Moreover, they existed six years before the degeneration became evident.

Acta Radiologica, Stockholm

22:535-872 (Dec. 3) 1941. **Partial Index**

*Air Myelography in Diagnosis of Prolapse of Disk and of Ligamentary Compression of Root. E. Busch.—p. 556.
Roentgenologic Aspects of Structure Designated as Interureteral Pad. N. P. G. Edling.—p. 573.
*Roentgen Diagnosis of Olfactory Meningioma. S. Erikson.—p. 581.
New Method of Pneumography of Subarachnoid Basal Cisterns. J. Frimann-Dahl and B. Ingebrigtsen.—p. 592.
Chordoma in a Thoracic Vertebra. C. J. Hansson.—p. 598.
Determination of Sex in Hermaphroditism on Basis of Ossification of Patella. H. Hellmer.—p. 602.
*Value of Roentgen Examination of Pancreas. O. F. Holm.—p. 620.
Roentgenographic Diagnosis of Pathologic Conditions in the Nasopharynx. G. Jönsson.—p. 651.
Diagnosis of Cavernous Hemangiomas in Digestive Tract. R. Kaijser. —p. 665.
*Experiences with Epidural Contrast Investigation of Lumbosacral Canal in Disk Prolapse. F. Knutsson.—p. 694.
An Apparatus for the Localization of Foreign Bodies in the Orbit. H. Larsson.—p. 704.
The Operative Procedure in Intervertebral Disk Protrusions. H. Olivecrona.—p. 743.
*Terminal Ileitis and Its Roentgen Picture. J. P. Strömbeck.—p. 827.
Diagnosis of Diseases of the Pancreas: Chemical and Radiographic Methods of Diagnosis. Nanna Svartz.—p. 841.

Air Myelography for Diagnosis of Prolapse of Disk.—Busch prefers oxygen warmed to body temperature for roentgenography of intervertebral disks. A spinal puncture is made with the patient on the x-ray table with the pelvis elevated. From 40 to 50 cc. of spinal fluid is fractionally replaced by oxygen, and more oxygen is introduced in order to obtain a slight excess pressure (from 250 to 300 mm. of water). After the various roentgen exposures have been made, the excess

pressure is released by spinal puncture. Headache or vomiting may result if this is not done. For six hours after the examination the foot of the patient's bed is kept elevated. Serious complications were not observed. At first, roentgenograms are more difficult to interpret than those obtained with iodized oil; facility, however, is readily acquired. Diagnosis of median prolapse of the disk and of ligamentary compression of the root is usually accomplished without difficulty; the lateral prolapse of the disk is more difficult to detect. In such cases myelography with iodized oil may become necessary. These cases are exceptional, the author encountering only 1 in 50 verified cases of prolapse. The author performed air myelography in 64 verified and in some negative cases. He had used the iodized oil method in a slightly smaller number of cases. On the basis of his experience he prefers air myelography. The method is indicated (1) in patients with typical signs of prolapse, (2) in those with early signs of prolapse, (3) in those with lumbago-sciatica and (4) in patients with relapsing sciatica.

Roentgen Diagnosis of Olfactory Meningioma.—Erikson points out that Cushing introduced the term olfactory meningioma for tumors originating in the ethmoid plate. These tumors are often accompanied by skeletal changes, which Cushing regarded as secondary. He demonstrated that tumor cells penetrate into the canaliculi of the bone and thus produce an irritation that leads to the formation of new bone. According to Lysholm, meningiomas may present the following roentgenologic aspects: signs of increased intracranial pressure, shifting and calcification of the corpus pineale, calcifications of the tumor, vascular changes and local reactions. The last may be elicited by pressure atrophy and by destruction or new formation of bone substance. In the meningiomas that originate in the ethmoid plate the bone changes are not as pronounced as in other meningiomas. Cushing emphasized that skeletal changes may be missing even in comparatively large tumors. The author presents 14 cases of olfactory meningioma that were surgically treated at a Stockholm hospital. He describes the roentgenographic, ventriculographic and surgical observations. The roentgenographic characteristics were verified at operation. In 5 cases exostosis could be demonstrated in the typical position and appearance. Ventriculography permits an exact localizing diagnosis.

Roentgen Examination of Pancreas.—Holm cites the difficulties encountered in the roentgenologic study of the pancreas. He distinguishes between direct and indirect pancreatic signs. The direct symptoms consist chiefly in pancreatic concrements and other calcifications inside the gland and partly in gas filled abscesses. The indirect signs develop when the pathologic process involves the surrounding organs and tissues. The author reviews results of 449 roentgen examinations of the pancreas. In 61 of these roentgenologic observations were verified at operation or by necropsy; in 26 neither operation nor necropsy revealed a pancreatic lesion; in 116 definite clinical signs of pancreatic disorders were present; in 104 viscera close to the pancreas were involved. The remaining 142 cases could not be classified with any of the other groups. In many there were symptoms suggestive of pancreatic disorders, but the results of the clinical examination were indefinite, while in many there were other diseases in which the behavior of the pancreas was not thoroughly investigated. The roentgenologic method used by the author is to be regarded as the study of the bed of the pancreas. He classifies the cases according to the size of the pancreatic bed. A normal pancreatic bed has about the same width as a vertebral body at the same level. The patients in whom the pancreatic bed was only three fourths or less of the vertebral width either had a chronic pancreatitis or were extremely emaciated. An enlargement of its size coexists not only with pancreatic disorders but also with obesity, ascites, tumors of the liver, metastases, infiltration due to perforated ulcers, hypernephroma and retroperitoneal tumors.

Epidural Contrast Investigation in Disk Prolapse.—In about 20 cases in which clinical signs suggested a protrusion of a vertebral disk, Knutsson carried out roentgenologic studies with epidural injection of perabrodil. Ten cc. of a 1 per cent solution of procaine hydrochloride is injected and is followed by 20 cc. of 35 per cent perabrodil. A protrusion big enough to cause occlusion of the epidural space with complete obstruction or a protrusion occupying the greater part of the cross section and thus causing a defect in the contrast shadow can be discovered. Smaller protrusions may not be discovered.

Terminal Ileitis and Its Roentgen Picture.—According to Strömbeck the lower ileum is equipped with abundant lymphatic tissue collected in Peyer's patches. The corresponding mesentery in the ileocecal angle contains similar accumulations of lymph nodes. Even under physiologic conditions this whole lymphatic apparatus is in a state of reaction toward the toxic and bacterial substances, which pass this region of great strategic importance immunologically and biologically. If this reaction exceeds a certain physiologic limit, symptoms of inflammation appear. The simple acute form of terminal ileitis is transitory in nature and may heal, leaving no traces. Roentgenologically, the outline of the mucous membrane in the last 10 to 15 centimeters of the ileum is uneven and edematous. The mucosal swelling is most pronounced next to Bauhin's valve, the two lips of which are sometimes considerably swollen and bulge into the cecum. The mucous membrane relief in the end part of the ileum is high and irregular, and a walnut sized filling defect is seen at the site of Bauhin's valve. Roentgen examination can be of great value in differentiating acute appendicitis from acute simple terminal ileitis in children and young people. The earliest changes in chronic cases consist in disappearance of the transverse folds of mucous membrane and rigidity of the intestinal tube, as well as some constriction of the lumen. There are many cases of chronic terminal ileitis in which it is not possible clinically, roentgenologically or at operation to determine whether or not ileocecal tuberculosis is present. In none of the author's 7 cases of chronic terminal ileitis in which resection was done did the microscopic picture indicate typical tuberculosis. The author has evolved the following theory in an attempt to elucidate the various forms of terminal ileitis: 1. The ileocecal region, particularly the terminal ileum, constitutes an important part of the defense against various infections. Acute terminal ileitis must be regarded as a morphologic expression of this locally intense state of preparation. 2. Chronic inflammatory conditions of varying etiology can develop here. 3. An infection of the tuberculous type should have greater possibilities of healing (with fibrosis, and so on) in a region as active immunologically as this one than in other parts of the body. 4. Ileocecal tuberculosis is centered mainly in the cecum. Terminal ileitis can be produced by other agents than the tubercle bacillus, but there is reason to believe that tuberculosis plays a much more important part in the pathogenesis of the disorder than Crohn and others believe. The probability of tuberculosis increases the more the process is localized in the cecum and ascending colon. Acute ileitis has a characteristic roentgen picture, while chronic terminal ileitis presents a picture which cannot be differentiated from that of ileocecal tuberculosis.

Nordisk Medicin, Stockholm

12:3147-3226 (Nov. 8) 1941

Hospitalstidende

Investigations on Apportionment of Some Sulfonamides in Blood and Tissue. P. Becker-Christensen and Margrethe Hejde Simesen.—p. 3147.
*Use of Oscillometric Method in Diagnosis of Peripheral Arterial Diseases. B. C. Christensen.—p. 3150.

Hygiea

Injuries to Ankle Joint: Review. I. Palmer.—p. 3167.

Oscillometric Method in Diagnosis of Peripheral Arterial Disease.—Christensen finds that oscillometric examination (1) allows diagnosis of slight degenerative changes in the arterial wall at a stage when arteriosclerosis cannot be established by palpation or roentgen examination, as plateau

shaped curves appear early and are helpful in differential diagnosis with reference to pes planus, varices cruris and the like, (2) allows distinction between spastic and organic arterial disorders and, (3) applied at various heights on the affected extremity, gives information as to the extent of the process.

Ugeskrift for Læger, Copenhagen

103:1555-1598 (Dec. 4) 1941

*Plantar Calluses in Children, Their Relation to Lowering of Transverse Arch and Height of Heel. V. Halberg.—p. 1555.
*Meningococcic Meningitis Treated with Sulfathiazole. H. Pedersen and J. Wilkenschildt.—p. 1562.
Pneumococcic Meningitis: One Case with Recovery. F. Einarsson.—p. 1568.
Treatment of Inguinal Lymphogranuloma with Sulfonamide Preparations. Inga Jespersen.—p. 1569.
*Serum Treatment in Conjunction with Sulfanilamide in Grave Appendicitis and Peritonitis. K. K. Ortmann.—p. 1572.
Three Complicated Cases of Appendicitis Treated with Sulfamethylthiazole. H. Bukh.—p. 1575.
*Continued Investigations on Treatment of Gonorrhea with Sulfathiazole. H. Haxthausen.—p. 1576.
*Additional Case of Anuria After Treatment with Sulfapyridine, with Recovery. E. Schroeder.—p. 1580.
Two Cases of Anuria After Treatment with Chemotherapeutics. B. Fogh.—p. 1581.
Prophylactic Administration of Sulfapyridine in Cases of Poisoning by Narcotics. Estrid Ottesen and Helge Kjems.—p. 1583.
Case of Intoxication with Sulfanilamide. J. P. O. Koch.—p. 1584.
New Substance Retarding Coagulation: 3,3'-Methylene-Bis-(4-Hydroxycoumarin). K. F. Jansen.—p. 1586.

Plantar Calluses in Children.—Halberg's examination of 320 school children aged from 8 to 12 showed that of the 154 boys 2 (1.3 per cent) had calluses on the ball of the foot, while of the 166 girls 37 (22.3 per cent) had a total of 40 calluses, 24 (60 per cent) being in the medial region of the transverse arch, 14 (35 per cent) in the lateral part and 2 (5 per cent) in the central part. In his opinion the chief cause of the difference in the number of calluses in boys and girls is the difference in the height of their shoe heels; the average height of the boys' heels is 11 mm. and of the girls' heels 26 mm. The difference between the increase of pressure on the front part of the foot with heels 15 mm. high and heels 26 mm. high is about 750 Gm.; with an increase in heel height from 0 to 26 mm. the increase of weight on the front part of the foot is about 1,650 Gm. Roentgenograms taken with a special technic demonstrate that even low heels produce obvious changes in the relative position of the metatarsal bones; usually the head of the fifth metatarsal is elevated, the heads of the second, third and fourth being depressed. The author concludes that heels should be abolished in children's shoes.

Meningococcic Meningitis Treated with Sulfathiazole.—Because of its easier absorption and elimination and its less toxic by-effects, Pedersen and Wilkenschildt consider sulfathiazole superior to the other sulfonamide preparations previously used in the treatment of meningococcic meningitis. They report 11 cases treated with this agent, seven of which were toxic cases with cutaneous metastases. In all the cases meningococci were found in the spinal fluid. Nine of the patients recovered rapidly; 2 of them died, 1 of whom was a child aged 5 months, the other a man who was moribund on admission. The sulfathiazole was administered orally in tablet form except in the case of the 5 months old child, to whom it was given intramuscularly.

Serum Treatment with Sulfanilamide in Grave Appendicitis.—Ortmann describes 8 cases in which this combined treatment was used. The serum treatment was well borne, as was the sulfanilamide. In case of nausea or severe cyanosis the sulfanilamide was administered less than the usual five days and injections of *n*-sulfanilylglycine were given. When it was desirable to start the chemotherapy especially early, injections of *n*-sulfanilylglycine were begun immediately after the operation and sulfanilamide tablets were given later. The course was rapid and favorable in all the cases, some of which had seemed desolate. The excellent course of the wound healing is attributed to the sulfanilamide component in the treatment. When suppuration in the wound in the abdominal wall is feared the authors advise sprinkling sulfanilamide powder in the wound. They followed this method in several instances, with excellent results, and intend to continue its use, in combination with the oral administration of the substance.

Treatment of Gonorrhea with Sulfathiazole.—Haxthausen regards sulfathiazole as the best means for the treatment of gonorrhea. The by-effects are few and insignificant. He reports the results of the treatment in 310 cases, in which the dosage was usually 6 Gm. daily for two days in recent uncomplicated cases, 6 Gm. daily for three days in complicated and previously treated cases, and from 8 to 10 Gm. daily for two or three days in cases with recurrence. In uncomplicated recent gonorrhea, 87 per cent of the men and 93 per cent of the women were cured. In complicated gonorrhea, 69 per cent of the men and 100 per cent of the women were cured. In previously treated gonorrhea 76 per cent of the men and 78 per cent of the women were cured.

Anuria After Treatment with Sulfapyridine.—Schroeder reports an additional case of complete anuria during treatment with sulfapyridine in a woman aged 27 with ulcerous colitis. He ascribes it to precipitations of sulfapyridine compounds in the urinary tract and blocking of the ureters. Cystoscopy and catherization of the ureters, successful in his previously reported case, were ineffective here. Ureterostomy on both sides with dilation of the ureters from above resulted in recovery. The use of sulfapyridine calls for strict indications, and the patients must be given abundant fluids and the diuresis should be determined during the treatment.

Upsala Läkareförenings Förhandlingar, Uppsala

47:1-146 (Oct. 5) 1941

Contributions to Knowledge of Mechanism Behind Heightened Resistance Brought About by Normal Sexual Functions. E. Agduhr.—p. 1.
Effect of Altered Sexual Functions on Storage of Arsenic in Mice. B. Skanse.—p. 55.
*Action of Sulfonamide Derivatives on Intestine of Rabbits. S. A. Jan Lindelöf.—p. 81.
*Remarks on Origin of Senile Cataract and Some Other Forms of Cataract. C. Lindahl.—p. 107.

Action of Sulfonamides on Intestine of Rabbits.—Lindelöf's experiments in rabbits showed that (1) sulfonamide derivatives exert a motor effect on the intestinal musculature, simultaneously lessening its irritability; (2) sulfapyridine in weak dosage causes an inhibitory action, in stronger dosage a motor action, and does not affect the irritability; (3) sulfathiazole in weak dosage has an inhibitory effect on the intestine, in stronger dosage a definite motor effect but predominatingly an inhibitory effect and (4) azosulfamide is characterized by a motor effect and increases the irritability of the intestine.

Senile and Other Forms of Cataract.—Lindahl discusses the genesis of various kinds of cataract—diabetic, tetanic, dinitrophenol, syndermatotic, myotonic and senile cataract, which is generally considered a separate form. They are all almost always bilateral, and associated with them is an abnormal state of nutrition expressed by an abnormal blood composition. Senile cataract is regarded as associated with a deficiency in the blood of substances necessary for the metabolism of the lens. The change in blood composition leads to a change in the aqueous humor, resulting in a disturbance of the lens metabolism and the origin of bilateral cataract. Statistics show the number of patients treated for cataract to be relatively higher during periods of high prices and consequent deficiencies in diet, especially in vitamin C and glutathione.

CORRECTION

Sulfapyridine for Poliomyelitis—Grams Instead of Grains.—In the current medical literature in THE JOURNAL, Sept. 13, 1941, page 966, in the abstract entitled "Sulfapyridine for Poliomyelitis," the references to the dosages recommended by the authors should have been in grams instead of grains. The dosages given in parenthesis should be disregarded.

Book Notices

Alcohol Explored. By Howard W. Haggard and E. M. Jellinek. Cloth. Price, $2.75. Pp. 297, with 10 illustrations. Garden City: Doubleday, Doran & Company, Inc., 1942.

This is one of the most stimulating books ever written on the popular subject of alcoholism. The authors have summarized a wealth of material gleaned from a complete review of the literature as well as their own original investigations. They have formulated the present status of alcoholism as well as the many problems needing investigation. Although the authors should be commended for their effort to bring loose ends together, some of their conclusions seem rather dogmatic and forced. For example, their classification of alcoholic persons into normal excessive drinkers, symptomatic drinkers, stupid drinkers and addicts is confusing, as most patients could be placed under several of these headings. The terminology also is rather arbitrary. For example, they refuse to use the words "alcoholism" and "alcoholic," terms which are universally understood by every one familiar with this problem.

The authors' contention that alcoholism is a disease deserves wider recognition by the medical profession. An estimated 5 per cent of all drinkers are intemperate, making a pool of two million potential patients. Alcohol causes untold suffering to the patient, his family and the community. On the positive side of the ledger, alcohol produces relaxation and conviviality in the 95 per cent of drinkers who are temperate. Alcohol decreases longevity but does not damage germ cells or progeny directly. The "lift" that alcohol gives is an illusion, as there is invariably a deterioration of performance.

The question why some people drink excessively has never been answed satisfactorily. A physiologic or psychologic habituation occurs in some cases. Drinking in some cases is a symptom of mental inadequacy. In other cases there is a hereditary intolerance to alcohol.

Treatment is still rudimentary. Three treatments are described, religion, which seldom takes, psychotherapy, which is lengthy, expensive and often unsuccessful, and the conditioned reflex method, which is applicable only to the fairly normal, stable and voluntary patient. This book is written in clear, understandable language and should be read by every physician.

Operating Room Procedure for Nurses and Internes. By Henry C. Falk, M.D., F.A.C.S., Clinical Professor of Gynæcology, New York University College of Medicine, New York. With a foreword by Eugene H. Pool, M.D. Third edition. Cloth. Price, $3. Pp. 443, with 342 illustrations. New York: G. P. Putnam's Sons, 1942.

In the present edition the organization of the subject matter remains unchanged. In making this revision the author, being an experienced surgeon, has made several major changes which elaborate and clarify the presentation of his material in part II, where he deals with the specific preparation of the operating room for general operative procedures. He has failed to revise or to make any valuable contributions to part I, to help bring about a more efficient functioning of the operating room division from the standpoint of newer developments in systematizing and simplifying operating room routines and duties. The author also fails to mention the more recent views on operating room construction, emergency lighting, sterilization and the advances made in operating room equipment. Surely, with the many improvements which have been initiated and generally practiced since the second edition in 1934, such areas, of necessity, would need revision.

In discussing emergency lighting the author makes the statement that there should be several illuminating gas fixtures for emergency use. This suggestion would seem undesirable even in 1934. The statement that powder in cans may be wrapped and sterilized in the autoclave for from twenty to thirty minutes is certainly not compatible with practices suggested in more recent publications on sterilization. The author, in listing the duties of the operating room personnel, states that it is the duty of the senior graduate nurse to fold all linen and to make all forms of packing. Why have such work done by professional nurses when a well trained nonprofessional worker can perform these duties just as effectively and, from the administrative point of view, more advantageously? Such statements as these would suggest a definite need for revision.

The second part of the book should be of great value to both nurses and interns. The author is peculiarly adept in presenting this material on operative procedures. In the chapter on gastrectomy, the step in which the stomach is freed from its attachments and blood supply has been revised with clarity. In the gynecologic section the Le Forte operation has been included in a clear, concise manner, accompanied by six excellent drawings. The vaginal hysterectomy routine has been revised altogether, with great improvement. The operation has been described in more detail, and the author has included fourteen excellent drawings of the procedure. The previous discussion of abdominal hysterectomy remains unchanged, but the author has added a second routine for this operation. The panhysterectomy procedure has been elaborated and clarified.

The chapter on transfusions has been rewritten with a presentation of the international classification of blood groups. The technic for typing blood and for cross matching are both described with use of this classification. Another feature introduced here is the description of the technic of indirect transfusion. The open method that the author describes in detail unfortunately is not the newer and seemingly more desirable method. He does present the closed method but with no emphasis. A description of the operation for fistula in ano is another addition to the book.

The book, taken as a whole, is the most complete and useful single edition on the subject of operating room procedure that the reviewer has found to date.

Impotencia sexual masculina. Por el Dr. Armando L. Domenech. Tesis de doctorado, Universidad nacional de Buenos Aires, Facultad de ciencias médicas. Paper. Pp. 89, with 32 illustrations. Buenos Aires: Nocito & Rañó, 1941.

The author first defines his subject from the practical point of view of the urologist as the complete or incomplete inability to perform the sexual act. In this he quotes Palazzoli and thus differs from O. Schwartz, who includes under impotence all anomalies of the psychophysiosexual sphere from the state of the individual's own amorous habits to the most serious perversions.

A brief sketch of embryologic development follows standard thought. A note on comparative anatomy is well presented, and several line drawings are included. A section on anatomy with diagrams in color fully orients the reader.

Normal physiology of the sexual act is discussed first under the head of the endocrine basis of sexual desire. Uretrorrhea due to Cowper's glands is mentioned, and much space is given to factors which assist in the production of an erection, such as psychosensory and dermovascular stimulation. This is followed by a consideration of ejaculation and the refractory period.

Etiology of impotence is presented in three parts: 1. Those whom genital malformations do not permit completion of the sexual act such as the following penile conditions: congenital absence, atrophy, pathologic or traumatic destruction, luxation or rupture, cicatricial bands. 2. Anomalies of the sexual appetite, such as homosexuality, results of castration and various endocrine deficiencies. 3. Anomalies of the nervous system both anatomic and functional. Illustrative cases are quoted under each of these heads. All causes are summarized in a large schema. Pros and cons of age, gonorrhea and varicocele are presented.

Regarding treatment, the author recommends (1) the correction of anatomic malformations, (2) replacement therapy for endocrine dysfunction, (3) operations on the sympathetic system, (4) operations on the vas, (5) muscular transplants, (6) testicular transplants and (7) psychotherapy.

The treatise closes with a report of work done on six white Leghorn cocks. Four were castrated; sixteen days later they were injected with a concentrate prepared as follows: For each cock, 1,000 cc. of urine was concentrated on a water bath to 100 cc. In three instances urine from an impotent patient, in one instance, from a normal man, was used. To the concentrate 100 cc. of chloroform was added. Twenty-four hours later the chloroform layer was separated off and allowed to evaporate. The resultant residue was picked up in olive oil and constituted the one injection which the cock received. The six animals were observed for changes in size of comb at one week, two weeks and four weeks following injection. Measure-

ments were made with a planimeter. Results were inconclusive. The author realizes this as well as noting that a larger series of animals would be desirable for measuring the excretion of male sex hormones in impotent persons.

Finally the author discusses the social significance of impotence, cites legal authority regarding its place as grounds for annulment of marriage and makes a plea for further study of these cases.

Vascular Sclerosis with Special Reference to Arteriosclerosis: Pathology, Pathogenesis, Etiology, Diagnosis, Prognosis, Treatment. By Eli Moschcowitz, A.B., M.D., Assistant Clinical Professor of Medicine, College of Physicians and Surgeons, Columbia University, New York. Cloth. Price, $3.75. Pp. 178, with 43 illustrations. New York, Toronto & London: Oxford University Press, 1942.

This monograph represents an integration and summary of the author's work on the subject during the past twenty-five years. A leading thought throughout the treatise is the mechanistic theory of arteriosclerosis. The author believes that normal intravascular pressure is an indispensable factor in the production of sclerosis. He does not deny the presence of other conditioning factors, such as the chemical composition of the blood, vascular supply of the walls of the vessels, intravascular stresses and perivascular resistance. But he maintains that the primary factor is intravascular pressure, which operates not only in arteries but in the entire vascular tree, such as veins, capillaries and the chambers of the heart. Normal or exaggerated function thus precedes morphologic changes, the reaction of the vessels to tension. Evidence is submitted that essential hypertension precedes arteriosclerosis and that arteriocapillary fibrosis in many visceral organs is the result of increased tension. The prophylaxis and treatment of arteriosclerosis lie, therefore, in the treatment of hypertension, which is briefly but adequately discussed. The author combines his long clinical experience with a thorough knowledge of the morbid histology of the vascular tree. If ever a problem required a correlation of the two points of view, arteriosclerosis is eminently one of these. The microscopic sections are excellent and so is the printing. There are only a few typographic errors. This is an important contribution, is stimulating and gives much food for thought. Its reading is strongly recommended to the general practitioner, who may detect the early changes and who may, by adequate measures, slow the tempo of a disease, which at least anatomically, if not clinically, is an inevitable destiny of all vertebrates. Surgery of hypertension, while still in an experimental stage, is one of the hopeful approaches to the problem.

The Rat in Laboratory Investigation. By a Staff of Thirty Contributors. Edited by John Q. Griffith Jr., M.D., Associate in Medicine, School of Medicine, University of Pennsylvania, Philadelphia, and Edmond J. Farris, Ph.D., Executive Director and Associate in Anatomy, Wistar Institute of Anatomy and Biology, Philadelphia. Cloth. Price, $7.50. Pp. 488, with 178 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1942.

This is a unique publication. The albino rat has come to be the most widely used laboratory animal, since it is relatively inexpensive and is easy to breed, house and work with. Further, it has been well standardized, so that laboratory workers can compare their results with those of earlier workers in the field and with contemporary research in other laboratories.

The present volume is prepared primarily for those doing original investigative work. It should be of value also to students, technicians and those engaged in breeding rats. The clinician would find it of interest as a reference work on nutrition, psychologic phenomena and comparative anatomy. It might well serve as a reminder of the tremendous amount of exceedingly detailed work necessary in building a foundation in preparation for any laboratory scientific research program.

The book is exceedingly well edited, and the contributions of the thirty different authors fit nicely into a pattern without unnecessary duplication and without apparent contradictions. While it would be impossible to encompass all known knowledge about this one animal in one volume, a more complete picture would have been furnished if a chapter or two had been devoted to a more elaborate description of the uses and limits of use of the rat as a laboratory animal. There are excellent brief chapters on the use of the rat in the biologic assay of hormones and on dosage of drugs for rats but nothing on the use of the rat in the study of bacterial and virus diseases of man. The chapter devoted to technics for the investigation of psychologic phenomena in the rat, exhaustive and well prepared as it is, tends only to emphasize the need for a similar chapter dealing with the technics for the investigation of communicable and infectious diseases. The chapters on anatomy, embryology, metabolism and hematology do, however, give a background for better use of the rat as an experimental animal.

The experiences of the more than thirty workers in thirteen universities, laboratories and institutions, combined as they are in this one volume, make a worthwhile contribution to the rapidly expanding works of research workers.

A bibliography accompanies most of the twenty-two chapters. In the more than eighteen hundred references a fairly complete reference list is supplied. For the most part these bibliographies do not include publications after 1939. Only six of the chapters cite references of 1940 and 1941.

Pain. By Thomas Lewis, M.D., F.R.S., Physician in Charge of Department of Clinical Research, University College Hospital, London. Cloth. Price, $3. Pp. 192, with 27 illustrations. New York: Macmillan Company, 1942.

This book is an up to date treatise on pain. It is written clearly and contains a tremendous amount of factual information based almost exclusively on work in the human being. It consists of fifteen chapters on pain sensitive tissues, the anatomic basis of pain, types of pain, two systems of pain nerves in the skin, erythralgia, nocifensor tenderness, cutaneous tenderness and nerve injuries, pain and tenderness in ischemic muscle, excitants of pain nerves, referred pain, referred manifestations of somatic and visceral origin compared, pain of visceral disease, tenderness and rigidity in visceral disease, source of pain and associated reflexes in visceral disease, and principles in the clinical use of pain. There is a good bibliography, although the author has omitted several convincing contributions discussing pain, the experimental work having been done on animals. This book should be in the hands of all neurologists, neurosurgeons, general surgeons, internists and neurophysiologists. It is highly recommended.

Hear! Hear! An Informal Guide to Public Speaking After Dinner; on the Lecture Platform; over the Radio. By William Freeman. Edited for America with additional chapters by Quincy Howe. Cloth. Price, $1.50. Pp. 180, with illustrations by Gluyas Williams. New York: Simon & Schuster, 1941.

This book is just what its title says it is, a compendium of hints for speakers. Most men who have achieved success in various branches of trade or professional activity take it for granted that they are fully qualified to arise and address audiences on a variety of subjects without having given either the study or the practice to this art that they would give to any new modification in their own field. Nevertheless public speaking is both a profession and an art. Those who are trained in the field are invariably superior in the quality of their work, just as those trained in removing tonsils are superior to those who attempt that simple procedure without training. The chapter entitled "How to Win an Argument" not only offers some practical hints but also some excellent anecdotes of modern debates. A special section is devoted to talking on the radio.

Hippocratic Medicine: Its Spirit and Method. By William Arthur Heidel. Cloth. Price, $2. Pp. 149. New York: Columbia University Press, 1941.

The name of Hippocrates is revered in scientific medicine not so much for any actual scientific discovery but for having established principles of thought which continued to guide medical science to our modern times. The eminent historian Heidel presents in this book a philosophic consideration of the hippocratic contribution and of its evolution from the mysticism that preceded it. It is taken for granted that the hippocratic writings are not the work of one person. The true significance of hippocratic medicine, according to Heidel, "lies in the circumstance that it is the expression of an age of incomparable importance in the intellectual life of the race." It laid the foundations of modern science. Most important of all was the introduction of exact observation as the basis for medical practice.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SEA WATER ENEMAS

To the Editor:—**The question of sea water enemas discussed in Queries and Minor Notes in The Journal, May 16, 1942, page 307, is a subject which holds considerable interest to any one in the naval medical corps and especially to those of us who are connected with aviation. The possibility of a forced landing at sea is always present and many of those so forced down have found themselves drifting for days in rubber rafts deprived of both food and water. Accordingly, Lieutenant Pittard, one of the medical officers while at the School of Aviation Medicine at Pensacola, Fla., attempted some experimentation on the effects of rectal instillations of sea water with himself as the subject. The results were inconclusive but interesting and accordingly I am enclosing a copy of his report, which appeared in *Contact* in February 1942. The latter publication is a local affair put out by the School of Aviation Medicine and sent to all those who at one time or another have attended the school.**

Norman L. Yood, M.D., San Francisco.
Lieutenant, M. C., U. S. Navy.

ANSWER.—The data presented by Lieutenant Pittard are not sufficient to support adequately his primary conclusion that is implied in the article's title, that dehydration can be relieved or prevented by the administration of sea water intrarectally.

Assuming that it is not attended by a concomitant loss of osmotically active substances (sodium or chloride ions) through vomiting, diarrhea or sweating, dehydration may be grossly described as a disturbance of the internal environment of the body that is characterized by a concentration of the ionic and molecular constituents of the intracellular and extracellular fluid compartments. Theoretically the only practical means of restoring the osmotic equilibrium of the dehydrated body is to provide it with a watery solution having a concentration of osmotically active nonoxidizable solutes lower than the maximal excretory capacity of the kidney for those substances.

Because the concentration of sodium chloride in sea water is close to 3 per cent (0.5 molar) and the maximal excretory capacity of the kidney for it is about 2 per cent (0.33 molar) (Davies, H. W.; Haldane, J. B. S., and Peskett, G. L.: *J. Physiol.* **56**:444, 1922) a selective absorption of water from it by the rectum and colon, leaving the salt in the bowel, would be the only possible means that would enable the body to maintain its osmotic equilibrium (water balance) on sea water retention enemas.

Foy, Altmann and Koudi (*South African M. J.* **16**:113 [March] 1942) have found that this theoretical mechanism is not operative in man. Urinary chlorides and blood chlorides rose to a much higher level in persons receiving sea water retention enemas than they did in those who had received nothing. They also noted a significant "salt diuresis" and a greater loss of weight in the sea watered group. It was the opinion of the investigators that, although it is absorbed from the rectum, sea water does not alleviate or prevent the development of the subjective and objective signs of dehydration, that it is of little or no value in maintaining a normal water balance, and that it may actually be harmful in that it effects tissue dehydration rather than hydration and "causes maximal kidney work."

The latter data are sufficiently well controlled and show differences between the treated group and the controls that would justify a more strongly worded conclusion, which could be worded as follows: Sea water is absorbed from the rectum and colon, it intensifies tissue dehydration, imposes a maximal load on the kidneys, and does not prevent or alleviate the objective and subjective signs of a water deficiency.

ALOPECIA AREATA

To the Editor:—**A white girl aged 10 lost her hair completely two years ago. It then spontaneously returned for about one year. It is now disappearing once more. Can anything be done about this condition?**

M.D., Ontario.

ANSWER.—This girl appears to have alopecia areata, which sometimes becomes generalized. It characteristically recurs after apparent cure, as in the case cited. Many theories have been advanced as to its cause, but none of them can be proved. It often occurs in families whose nervous system is unstable. The attacks are often brought on by worry, fright, pain or other forms of nervous shock. It was discussed in answer to a query in these columns, Sept. 28, 1935, page 1057.

Though it has received little attention for many years, the theory of dental origin of this disease was revived recently by James D. Grace, D.D.S. (extensive Alopecia Areata of Dental Origin, *Arch. Dermat. & Syph.* **45**:349 [Feb.] 1942). Of course the fact that the hair returned after correction of the tooth disturbance is no proof of such origin, as Nobl points out. He treated a man with extensive alopecia of this kind for a long time with all the methods known (Nobl, G.: Ueber das Schicksal maligner Alopecien, *Wien. klin. Wchnschr.* **48**:205 [Feb. 15] 1935). Finally treatment was given up and after four years without any kind of therapy the hair suddenly began to grow and returned to normal. Nobl pointed out that, if this had occurred during treatment, it might have been thought that a proof of etiology had been established, depending on what form of therapy was being used at the time of the recovery.

Although the cause of the disease is not known, there are methods of treatment that aid in recovery. This has been proved by applying the treatment to certain parts of the bald scalp and obtaining a more rapid growth of hair on the treated than on the untreated areas (Jackson, G. T., and McMurtry, C. W.: Diseases of the Hair, Philadelphia, Lea & Febiger, 1912, p. 119). Such therapy consists of irritating applications to the bald areas, at first mild, then stronger, depending on the duration of the disease and the size of the area treated. Milder treatment is indicated for a recent attack and for large areas of baldness. Stronger ammonia water rubbed on several times a day after washing with hot water and soap is recommended early in the attack. If this has no effect after several weeks of use, the physician may apply acetic acid once every fifth day. Cresolic acid in alcohol, beginning with 30 per cent and increasing as the scalp becomes more resistant up to 90 per cent, may be painted on the spots every five or seven days. Cutler's fluid, equal parts of tincture of iodine, chloral hydrate and phenol may be used in the same way, or one part of phenol and four parts of lactic acid. Ultraviolet radiation strong enough to result in scaling, increased at successive applications, is valuable. In resistant cases, injections into the bald areas of one of the milk preparations is said to be effective. A preliminary injection of a minute amount of the preparation to guard against a possible sensitization is a wise precaution.

At each visit the physician should pull out loose hairs at the border of the diseased patch, demonstrating the size of the area to be treated and showing the progress of the disease. In patients with low metabolic rate, thyroid is thought to aid in cure.

The prognosis in cases of universal alopecia is grave. A considerable percentage of these do not recover. However, one never knows which ones these are, so treatment should be given all. Children recover more often from the severe form than do adults. Recovery has been known to occur many years after the alopecia has become generalized.

SUBCUTANEOUS OXYGEN FOR RHEUMATIC DISORDERS

To the Editor:—**A physician recently demonstrated the following method of treatment for arthritis, lumbago and other painful conditions: Pure oxygen gas is injected into the tissues around the site of the pain, with precaution taken to avoid getting the needle into a blood vessel. Is this a dangerous procedure? The doctor claims results where every other known treatment has failed.**

M.D., Alabama.

ANSWER.—Therapeutic subcutaneous injection of oxygen is without serious danger if, as the questioner states, "precautions are taken to avoid getting the needle into a blood vessel." If the oxygen is given slowly the patient will experience little pain, but he may note slight local soreness for a varying period of hours after the injection. One physician reported the occurrence of earache and of accidental inflation of the eyelids, but these symptoms cleared as the gas was absorbed. In 1 case the oxygen was said to have caused temporary painful swallowing as a result of infiltration of the mediastinum during injections into the back.

The main threat of this procedure lies in the chance that the oxygen may find its way into a vein. Should this occur, the intensity of symptoms will depend on the amount and speed with which the gas enters the blood stream. If a small amount is introduced there may be dry cough with transient dyspnea and some substernal soreness. It has been shown, however, that animals may be severely shocked and experience severe or even fatal convulsions if oxygen is introduced into veins quickly and in large amounts. Unquestionably the same thing could result in man.

This method of treatment for various rheumatic diseases has apparently found some favor in France, but little attention has been paid to it in this country. The procedure has been recommended only in articles devoid of adequate case reports, lacking

in control observations, and insufficiently documented with other objective data to permit independent judgment of the matter. No prominent rheumatism clinic in this country has seen fit to adopt this procedure, and its usefulness has not been demonstrated.

CONVULSIONS AND DEATH PROBABLY FROM COCAINE

To the Editor:—A young man was being operated on for deviation of the nasal septum (submucous resection). He had been healthy all his life except for an occasional head cold and headache. The operation was to correct the defect so that he might enter the Naval Academy. About two months prior to the operation it was found that he had a bleeding time of twelve minutes and coagulation time of fifteen minutes. The blood and platelet counts were normal. After treatment with calcium gluconate, liver extract and thyroid the bleeding and coagulation time was brought down to three minutes each. The night prior to the operation he was given 3 grains (0.2 Gm.) of sodium amytal and this was repeated at about 11 o'clock next morning, with morphine sulfate ¼ grain (0.016 Gm.) and atropine sulfate 1/150 grain (0.0004 Gm.) about forty-five minutes prior to the operation. About one-half hour prior to to the operation his nose was sprayed with 2 per cent cocaine hydrochloride and irrigated with isotonic solution of sodium chloride. The mucous membrane was wiped with cotton soaked in epinephrine and 10 per cent cocaine hydrochloride; following this the nose was packed with gauze soaked in cocaine hydrochloride 10 per cent. The operation was started about one-half hour later. About 0.25 cc. of 1 per cent procaine hydrochloride was injected into the septal mucosa, but this was discarded, as the cocaine anesthesia seemed sufficient. After about thirty minutes of operation (the cartilage had been freed on both sides and no trauma had been caused) the patient developed a slight pallor, which was followed by cyanosis. Immediately prior to this he had been talking and feeling fine. He then had convulsive seizures of the hands and face, which gradually spread over the body. He became unconscious and very cyanotic. Respirations were slow and jerky. The pulse was normal at first but later began to increase rapidly. In spite of oxygen and carbon dioxide, caffeine with sodium benzoate, nikethamide and epinephrine intravenously, the patient died. The pallor, cyanosis and convulsions seemed to develop suddenly after they started, and respiration ceased ten minutes after the attack developed. This all occurred about forty-five minutes after the cocaine was given. A thorough autopsy revealed no pathologic changes of significance except a small amount of insufflated blood in the lungs, thought to be the result of artificial respiration and bleeding from the nose. No hemorrhage was noted in the brain tissue. My opinion is that this was a respiratory death due to the cocaine hydrochloride. Previously he had had his nose sprayed several time with 2 per cent cocaine without any effect. Please give an opinion of the case.

M.D., U. S. Navy.

ANSWER.—Under the circumstances described it seems logical to ascribe the cause of death to toxicity caused by the administration of cocaine.

Susceptibility to the toxic effects of the so-called local anesthetic drugs is known to vary widely among individuals and even in the same individual at different times. Whether a condition causing prolonged bleeding and clotting time or whether the administration of large amounts of either calcium gluconate, liver or thyroid might modify such susceptibility is not known. Apart from susceptibility the quantity of drug carried at one time by the circulation to the central nervous system is thought to determine the advent of "a reaction." The strength of the solution of cocaine used plus the vascularity of the surface to which it is applied probably influence the rapidity of entrance of the drug into the circulating blood. The latter factor (vascularity) is considered justification for the use of epinephrine to produce local ischemia. In the case cited it is possible that, as the ischemia from epinephrine disappeared, absorption of cocaine was rapid. The interval between packing and the onset of signs of toxicity is thus explained. The technic of applying anesthetic agents and vasoconstrictors is not uniform in present day practice. Whatever the method used, the possibility of disastrous results is always present.

Toxic reactions are usually first manifest by cortical stimulation. This may be evident for instance as talkativeness, tremor and slight twitching of the small muscles of the face followed by convulsions. Disturbances of the autonomic nervous system are usually evident. Depression of the vital functions of respiration and circulation is the terminal picture and cause of death. If a convulsion has preceded the depression, respiratory exchange is embarrassed or prevented during the attack, thus leaving the tissues with little or no oxygen at the advent of depression from drug action.

Logical treatment of a reaction from cocaine toxicity may then be divided into two efforts:

1. Immediate and early support of the respiratory function. This means the instant initiation of artificial respiration with oxygen as soon as possible. The use of pure oxygen and a mask and strong rubber breathing bag, pressure on which can force oxygen into the lungs, is ideal. When such simple equipment is not immediately available, direct inflation of the patient's lungs from those of the physician or manual maneuvers must suffice. The important thing is to assure the presence of oxygen in the alveoli while there is yet circulating blood to carry it to the tissues. Considerable pressure or an artificial airway may be necessary to accomplish respiratory exchange. Verification of lung inflation by observation of movement of the chest wall is helpful. The injection of stimulant or analeptic drugs is not usually considered of value.

2. Arrest of the convulsion. Abundant oxygen in the tissues probably acts as an anticonvulsant. However, when the convulsion has begun it can be stopped by the intravenous administration of a derivative of barbituric acid such as amytal, soluble pentobarbital or pentothal. Interruption or delay of artificial respiration with oxygen to prepare and administer the barbiturate is not justifiable. This should be accomplished by an assistant.

If adequate delivery of oxygen to the tissues can be maintained throughout the period of the reaction, detoxification of the drug is usually rapid and recovery prompt and complete.

TREATMENT FOR PINWORMS

To the Editor:—Can you give me any information on the gentian violet treatment for pinworms? Is it considered the method of choice? I have a child aged 3½ who refuses to swallow the enteric coated pills. Could I pulverize uncoated pills and give them to her in solution?

M.D., Maine.

ANSWER.—The gentian violet (methylrosaniline) treatment for pinworms is the method of choice from the standpoint of safety and efficacy. The dose of the drug for adults consists in the administration of two 32 mg. tablets before meals three times a day. This treatment is continued for eight days; the patient is then permitted to rest for a week, following which the treatment is repeated for an additional period of eight days. Children may be given the drug at a dose rate of 10 mg. daily for each year of apparent (not chronological) age, which is equivalent approximately to 32 mg. (½ grain) a day for each three years of apparent age. This daily dosage should be divided into two or three parts. The period of treatment is the same as for adults. About one third of experimentally treated patients suffered some reaction in the form of nausea, vomiting, diarrhea, abdominal pain, and the like. These symptoms can usually be controlled by reducing the dose or suspending treatment for a day or two until the patient returns to normal. In any event, the full course of treatment should be given for best results. Contraindications for the use of gentian violet include concomitant infections with Ascaris lumbricoides, moderate to severe cardiac, hepatic or renal disease, alcohol and diseases of the gastrointestinal tract. Gentian violet is not well adapted for children too young to swallow tablets. Administration of the drug in solution is objectionable from the standpoint of staining the skin and mucous membranes. If given in this manner, it is probable that the efficacy would be somewhat reduced and that there would be a greater tendency to nausea and vomiting. Enema treatments may be used as an alternative in young children. High soapsuds or saline enemas are of value if repeated every other night for three to four weeks. However, hexylresorcinol enemas give better results. The child is given a high soapsuds enema at bedtime. Following evacuation of the fluid, a suitable amount of a 1:2,000 solution of hexylresorcinol in water is administered by rectum. This should be retained as long as possible. This treatment should be given every other night for at least three weeks. In some cases more prolonged treatment is required. Repeated treatment over a period of time is necessary to allow for desiccation of pinworm ova in the patient's surroundings; otherwise, reinfection is very apt to result. For the same reason it is advisable to treat all infected members of the family at the same time in order to eliminate simultaneously all household carriers. There is no treatment which will cure all cases, and persistence is often required in combating the infection. A few individuals show idiosyncrasy to hexylresorcinol and may suffer local reactions. The drug should not be administered to such persons.

OOPHORITIS FROM MUMPS

To the Editor:—A single woman aged 25 had mumps three and one-half months ago. Soon after that, pain started over both ovaries and has persisted ever since. It does not seem to cease. I have had her on bed rest. Pelvic examination shows some tenderness in both adnexal regions but there is no enlargement. There is no fever or discharge. Her periods are normal. What can I do to get rid of this pain?

Bernard Patmos, M.D., Adrian, Mich.

ANSWER.—Mumps often results in inflammation of the ovaries. After the illness is over there is no specific remedy for the oophoritis. Hence the customary treatment for inflammation of the pelvic organs should be used; namely, prolonged hot douches, hot sitz baths, diathermy and treatment with the Elliott or Newman machine. In addition the patient should rest as much as possible and should be given mild anodynes until the pain subsides.

FUNCTIONAL BOWEL DISTRESS

To the Editor:—A man aged 28 who formerly suffered from infantile paralysis complains of severe flatulence, which gives him considerable disadvantage during office work. I have treated with albumin tannate and a preparation of bile. They gave him some relief. The analysis of the feces showed only that meat was partially digested. Formerly he was treated with colonic irrigation without noticeable results. What else can be done for him?

M.D., New York.

ANSWER.—Before the diagnosis of functional bowel distress is made, the physician must be sure that the symptoms are not due to some organic condition of the gastrointestinal tract which has been overlooked. Protozoal infection of the bowel, specific food sensitivity and cardiovascular disease are other causes of flatulence which must be kept in mind. The presence of partially digested muscle fibers in the feces is not significant. However, the distress appears to be of functional origin, and it is unlikely that it is in any way related to the previous history of infantile paralysis.

It is suggested that this patient be given a low residue diet, consisting essentially of the elimination of raw fruits and vegetables, as well as beans, cabbage and other notoriously "gassy" foods. Candy, honey, syrups, bran, nuts, carbonated beverages, beer and spiced and highly seasoned foods should be avoided. Excessive smoking and chewing gum may also produce flatulence and should be forbidden.

Cathartics, especially saline laxatives, should be avoided; they may aggravate the flatulence. Constipation can be treated by dietary management; i. e., by including in the diet sufficient cooked fruits and vegetables to produce firm formed stools. Small oil or water enemas or glycerin suppositories may be employed occasionally if the patient is unable to expel the stool from the rectum. This can be determined by digital examination.

It is advisable to administer a mild sedative such as phenobarbital ½ grain (0.03 Gm.) three times daily, and also at night to promote longer hours of restful sleep. Tincture of belladonna in doses of 30 to 45 minims (2 to 3 cc.) daily may also be helpful.

For the effective therapy of such functional conditions the physician must also recognize and evaluate the social and psychic factors present. Psychotherapy directed toward the alleviation of emotional or social problems may be an essential part of the treatment and on occasion may be the sine qua non of adequate therapy.

INTRAPERITONEAL CHEMOTHERAPY

To the Editor:—The use of sulfanilamide and sulfathiazole powder in the presence of acute gangrenous appendicitis and purulent peritonitis and on the cervical stump in supracervical hysterectomy and sewed into compound fracture wounds has received wide attention and commendation in a large number of articles appearing in the medical literature. There seems to have been an increasing number of adverse reactions including slough of the appendix base with resultant hemorrhage and various foreign body reactions of the sulfanilamide powder. I have used sulfanilamide powder in the appendical stump region, in the peritoneal cavity and in the incised wound at closure. The results so far have been encouraging, but with the increasing evidence against its use I would greatly appreciate an opininon as to its advisability.

Paul B. Shuey, M.D., Long Island City, N. Y.

ANSWER.—Chemotherapy has been used locally in the peritoneum for two indications: (1) to combat infection already present and (2) to prevent infection in a contaminated area.

In the presence of exudate and necrotic tissue, absorption of the chemical is slow and the local bacteriostatic effect is lessened. Sulfanilamide has no pronounced irritative effect on the peritoneum and does not excite a foreign body reaction. Sulfathiazole is not as readily absorbed and may remain as a foreign body to cause foreign body reaction. Absorption of the chemical is usually rapid, causing a peak of concentration within three hours in the absence of exudate and disappearance by the end of twenty-four hours. The concentration in the portal blood is much higher than that in the systemic circulation (Jackson and Coller, THE JOURNAL, Jan. 17, 1942, p. 194) and hepatitis with jaundice may supervene. Enormous doses should not be used in the uninfected peritoneum, as around an anastomosis. It is probable that 5 Gm. or less will do everything necessary under these circumstances. It is unlikely that sloughing, hemorrhage or other unfavorable local result is due to anything but the surgical pathologic process rather than to sulfanilamide. The general reaction, particularly hepatitis, is to be more feared. With the knowledge now available it is wiser to limit local chemotherapy in the peritoneum to sulfanilamide. In doses of not over 10 Gm. in a field covered with exudate and not over 5 Gm. in a normal peritoneum no harm is to be anticipated, certainly none due to local irritation.

NEURAL COMPLICATIONS OF PERNICIOUS ANEMIA —CATARACT AND PERNICIOUS ANEMIA

To the Editor:—A white man aged 46 is suffering from a combined sclerosis with comparatively minor changes in the blood picture. The diagnosis was established in one of the leading hospitals in this country. The anemia is completely controlled under intensive liver therapy (up to 60 units of crude liver a week). In addition to this the patient receives high doses of nicotinic acid and B complex. After eight months of treatment the neurologic condition is practically unchanged. Could you suggest any additional therapy? Somebody advised blood transfusions in spite of the now normal blood picture. I cannot conceive what blood transfusions could do in this case. What is your opinion? This patient offers another problem. He has a cataract in one eye, which is now mature. The other eye is perfect. Two ophthalmologists whom he consulted gave opposite advice. The first advised operation; the completely controlled pernicious anemia is no contraindication. On the other hand there may be a loss of vision as the result of secondary glaucoma or other complications if the cataract becomes hypermature. He does not want to risk the loss of vision in the eye with the cataract because there is always the possibility that something may happen to the other eye. The other ophthalmologist is absolutely against operation. His reasons are that (1) the pernicious anemia is a contraindication and (2) he never operates on a cataract if the other eye is intact. What is your advice?

Benedict Nagler, M.D., Newark, N. J.

ANSWER.—The patient undoubtedly has pernicious anemia with irreparable neural damage. There is no additional therapy that would be beneficial in such a case. Progression of cord damage can be prevented, however, if adequate liver therapy is continued. There is no reason to believe that blood transfusions would help this patient.

As to the cataract, the adequately controlled pernicious anemia with combined sclerosis is no contraindication to operation. Most ophthalmologists would choose to operate at the present time.

SCLEROSING SOLUTIONS AND SYNCOPE

To the Editor:—I have observed 3 cases of syncope following injection of internal hemorrhoids. In 1 case the reaction followed immediately after the injection of Sylnasol and the blood pressure went to 40 systolic and 30 diastolic. In the others, the reaction occurred in one-half hour and in one hour. In all cases there was local pain followed by faintness, pallor, cold sweat and nausea. There had been several previous injections. As I have not seen any references to the complications in these cases, I wondered what the mechanism might be.

M.D., Massachusetts.

ANSWER.—Syncope following the injection of a sclerosing solution may be due to one of two mechanisms. One should consider a sensitization to the injected drug, especially if there have been previous injections. Sylnasol is a proprietary solution which contains the sodium salts of the fatty acids of psyllium seed. Epinephrine 1:1,000 in doses of 0.3 to 0.5 cc., given subcutaneously, may be life saving. But the syncope may also be due to a pulmonary embolism, in which case the thrombus caused by the irritating solution promptly breaks loose and is capable of producing identical symptoms. Dyspnea might be more pronounced in the allergic reaction but is naturally an important symptom of pulmonary embolism. Atropine 1/75 grain (0.001 Gm.), given intravenously, should be tried in the second form. It is doubtful whether a differentiation between the two types of reactions is always possible, although edema and urticaria or chest findings and hemoptysis would settle the question. The bronchial spasm, present in both forms, may yield to intravenous administration of aminophylline.

ROENTGEN THERAPY FOR TUBERCULOUS LYMPHADENITIS

To the Editor:—A woman aged 25 has a large mass at the angle of the jaw, involving the posterior cervical lymph nodes, suspected of being tuberculous. Can you tell me the present status of roentgen therapy in tuberculous glands? How does it compare with surgical results? Any further suggestions would be appreciated.

M.D., New York.

ANSWER.—Assuming that the mass at the angle of the jaw in the case referred to is made up of enlarged lymph nodes, and assuming that the inflammatory process responsible for the enlarged nodes is tuberculous in character, roentgen treatment should have a favorable effect if the treatment is given properly. Not only the nodes visibly affected should be included in the field of irradiation but the entire side of the neck (or both sides if there is any evidence of lymphadenitis on the other side). The treatment should consist of a dose of approximately two thirds or three fourths of the so-called tolerance or erythema dose, and this should be repeated every three or four weeks for from three to six months at least. Rays generated at moderate voltage (between 130 and 140 kilovolts) and filtered through 4 mm. of aluminum appear to give the best results in most cases.

Tuberculous processes in general frequently respond well to roentgen treatment, but the response is characteristically slow and treatment has to be repeated at the intervals mentioned. Occasionally, when one or more nodes have broken down and contain purulent material, it may be advisable to incise just enough to allow free drainage and then continue with roentgen treatment. Extensive excision of tuberculous nodes is seldom necessary or advisable.

As for comparing the results obtained by surgical treatment and by roentgen treatment, the effect of the former is more rapid but the cosmetic result is frequently more or less unsightly. Roentgen treatment usually brings the tuberculous process under control if the treatment is continued long enough, and the cosmetic result is far superior, but it requires more time.

DURATION OF CARBON MONOXIDE IN BLOOD

To the Editor:—Please inform me as to about how long carbon monoxide may be found in the blood after having been present in sufficient quantities to cause coma. I have recently seen a patient thought to have carbon monoxide poisoning. He was unconscious for about thirty minutes. After this he aroused and because of pains in the chest and head was given ½ grain (0.02 Gm.) of pantopon. He lapsed into a coma again and remained unconscious for seventeen hours. A blood sample taken nine hours after onset, and while the patient was still unconscious, did not reveal the presence of any carbon monoxide. He had had no other medication except oxygen by nasal catheter for several hours. Would all traces of carbon monoxide be likely to have disappeared from the blood at this time? The coma is still unexplained and the patient does not seem to be greatly [illegible] by his experience.

Willard [illegible] M.D., Greensboro, N. C.

ANSWER.—The rate of carbon m[illegible]mination is distinctly influenced by a number of factor[illegible] the duration of retention of appreciable quantities of this [illegible]s greatly. Under conditions of adequate respiratory stimulation the rate of disassociation roughly may drop one half every hour. Thus, if the blood saturation at the time of removal from the dangerous gas was 60 per cent, under suitable treatment this might approximate 30 per cent at the end of one hour, 15 per cent at the end of two hours, and so on. The last 10 per cent of gas dissociates itself much less freely than is true for a given 10 per cent in higher brackets. Under ordinary conditions of questionable treatment the rate of disassociation may be slower, and under some circumstances as much as an hour might be required to obtain a drop from 35 per cent to 25 per cent of blood saturation. The finding of low percentages of blood saturation from carbon monoxide is not extraordinary sixteen hours after removal from exposure. Conversely, the failure to detect carbon monoxide at the end of that period, or much shorter periods associated with adequate treatment, is not remarkable. The laboratory procedures commonly used in the measurement of blood saturation with carbon monoxide are not so accurate as to yield indubitable results at such levels as 2 or 4 per cent. Failure to detect carbon monoxide at the end of nine hours, and particularly after oxygen therapy, by no means rules out the possibility of carbon monoxide poisoning nor does the fact that a period of consciousness occurred between two periods of coma eliminate this possibility. Although it is not certain that carbon monoxide poisoning did exist, this becomes readily possible if any proof exists as to the presence of carbon monoxide in dangerous quantities in the air inhaled.

CONGENITAL SYPHILIS

To the Editor:—An infant aged 3 months had a positive Wassermann reaction at 1 month and again at 3 months. At both times a Kahn reaction was negative; the cord was positive at birth. The mother's infection occurred between the second month, when it was negative, and the fifth month, when it was found positive. She was treated with both mapharsen and a bismuth compound, receiving both at most of the weekly visits up to confinement. Should one start treatment for syphilis in the infant? There have been no symptoms or clinical evidence of the disease found and the infant is doing perfectly well. A rather poor roentgenogram of the long bones at 1 month showed no abnormality. M.D., Montana.

ANSWER.—The cord blood Wassermann reaction is worthless. In the first place it may simply reflect the mother's serologic reaction on the blood, under which conditions one would expect the serologic reaction to become negative in a matter of six weeks to two months.

In this case, in which the mother had syphilis that was contracted between the second month and the fifth month and has been receiving treatment since then, the situation is somewhat different; and since the child's serologic reaction is still positive at three months the child should be regarded as having congenital syphilis and started on treatment at once.

REPEATED INJECTIONS OF STROPHANTHIN FOR ANGINA

To the Editor:—I would appreciate an opinion on what good can be expected when injecting intravenously strophanthin 0.025 mg. once a day for one week and three times a week thereafter in a case of coronary occlusion with myocardial damage of five years' duration. Is there a possibility of decreasing the anginal attacks?

Ignatius Kornblüh, M.D., New York.

ANSWER.—There would be a possibility of decreasing the number of anginal attacks suffered by a patient if the cardiac output could be increased by this method of treatment. Ordinarily strophanthin is given intravenously for its quick action, and one does not ordinarily continue the use of this drug daily thereafter. The other preparations of digitalis and squill which have similar action can be taken by mouth after the therapeutic effect has been achieved by some of the quicker acting drugs like strophanthin and cinobufagin. It might be wise to try having the patient wear an elastic abdominal support. If the patient is not too obese one of the light weight lastex models may suffice, but if the patient is obese with a pendulous abdomen a stronger elastic supporting belt, which can be obtained from many of the surgical supply houses, would probably be most effective. These belts should be tight enough so that they assist in the movement of the diaphragm during respiration, thereby increasing the amount of blood brought back to the heart.

CHRONIC GONORRHEA

To the Editor:—About eight months ago a man aged 23 had an attack of gonorrhea, which presumably was cleared up. About two months ago he broke loose with either another acute attack or a recurrence of the old condition. I put him on a course of sulfathiazole to no avail. After an interim I put him on a course of sulfapyridine. This lessened the discharge (merely an occasional drop at the external meatus) but the smear still was positive. Then I went back to sulfathiazole plus a course of gonorrheal vaccine. The smears are still positive. Would there be any point in trying any of the other sulfonamide derivatives such as sulfanilamide or sulfadiazine? If not, what would be your suggestion as to what to try next? I would sincerely appreciate any suggestions you may have to offer. M.D., New York.

ANSWER.—In view of the chronicity and continued urethral discharge one must look for a focus of infection in the prostate, the urethra or the paraurethral glands.

It is suggested that the patient have a course of prostatic massages and urethral soundings followed by instillation of a mild urethral antiseptic. These may be alternated with the treatments being given twice a week. It would also be helpful to have him instill himself once or twice a day with an antiseptic. Five per cent neosilvol is excellent and also does not discolor the clothes.

A course of sulfathiazole or sulfadiazine may be given with the treatment suggested.

MILK FARMS FOR REDUCING

To the Editor:—Inquiries have come to my office asking where milk farms are located in Illinois for the purpose of exercise and reducing. Are these places approved by the medical profession?

Nora B. Brandenburg, M.D., Chicago.

ANSWER.—In general, institutions such as milk farms established for the purpose of exercise and reducing are not approved by the medical profession. Many of these institutions are conducted without proper medical supervision. Dieting is frequently too stringent, and unbalanced meals are often ingested over a sufficiently long period to lead to dietary deficiencies. Furthermore, after following this type of regimen, on return to former activities, the faulty habits of eating which originally produced obesity are usually resumed, and the weight lost is rapidly regained.

A list of the locations of such milk farms is not available.

SPECIFIC GRAVITY OF PROCAINE HYDROCHLORIDE IN SPINAL FLUID

To the Editor:—What is the specific gravity of procaine hydrochloride dissolved in spinal fluid? Is it heavier than the spinal fluid or lighter than the spinal fluid? Edwin M. Meek, M.D., Huntington, W. Va.

ANSWER.—It is heavier than spinal fluid unless some material has been added for the purpose of making it lighter.